

36. Monograph of the Hymenopterous Family Stephanidæ.

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STEPHANIDÆ.

The position of this family remains undetermined, as it appears to form a transition between the Ichneumonidæ and Evanidiæ, with some leanings towards the Braconidæ. Different authors have taken very varied views as to its affinities. Cresson includes only *Stephanus* and the synonymous *Megischus*; Cameron adds *Monomachus*; while Ashmead unites *Stephanus* and *Megalyra*. Even Schletterer, the monographer of the family, declined to express any decided opinion. Some authors unite *Stephanus* and *Stenophasmus* as members of this family, though Ashmead places the latter next to *Doryctes*, and they are now usually considered to be Braconidæ. The two may be easily distinguished:—

Antennæ 30-40-jointed, shorter than body; anterior ocellus surrounded by five frontal tubercles; mandibles recurved, parrot-like; mesonotum not sulcate; scutellum tripartite; posterior femora armed with two or three large teeth beneath. Fore wing with one cubital cell, hind wing without cell, or with one only; abdomen convex beneath.

STEPHANIDÆ.

Antennæ with about 70 joints, longer than body; frontal tubercles wanting, or not more than two; mandibles not recurved; mesonotum with two longitudinal sulci; scutellum entire; posterior femora mutic; fore wing with two cubital cells; hind wing with two or three complete cells; abdomen more or less concave beneath. . . . STENOPHASMIDÆ.

Roman (Arkiv för zoologi, xi. 1917) states that the structure of the body, especially of the abdomen and legs, is sufficiently characteristic to entitle them to rank as a family, and considers

them to be nearest to the Evaniidæ, especially the Aulacinæ, which have similar habits. Evidence of this is adduced from the general form and the mode of insertion of the antennæ, the tendency of the posterior margin of the head to become collar-like, the strong pleural sulcus for the reception of the middle legs, and possibly also the tendency of the neururation of the wings to become more simple. The special character of the five frontal tubercles occurs in the same manner in the Oryssini, and Roman would place the Stephanidæ as the lowest member of the great group of Ichneumonidæ, between the Evaniidæ and Aculeata.

For convenience, especially as an aid to identification, I accept Enderlein's subfamilies, with the addition of *Neostephanus* Kieffer, while admitting the possibility of transition forms.

Morley (Entom. 1917, p. 106) has drawn attention to the analogy of their structure with that of the Pimplid tribe *Xorides*, to which Lamarck actually ascribed *Stephanus serrator* under the name of *Xorides coronator*.

GENERAL DESCRIPTION.

The head is large and globose, with five frontal tubercles surrounding the anterior ocellus, from which the family takes its name (Greek: *stephanos*, a crown or wreath). The anterior tubercle is frequently larger than the rest, very rarely obsolete; the posterior pair are almost invariably smaller than the others, and have been quite overlooked by some authors, who describe species as trituberculate only.

The powerful mandibles protrude rectangularly, are externally basally angular, anteriorly compressed, pointed and bent downwards like the beak of a parrot, with long grey to golden pubescence beneath. The maxillary palpi are long, slender, and five-jointed; basal joint short, second twice as long as first, the others of about equal length. The labial palpi are short and four-jointed; the three basal joints clavate, the apical cylindrical and longer. The eyes are large and roundish elliptical. Straight lines joining the ocelli would form an equilateral triangle with the base behind; the posterior ocelli are close to the interior margin of the eyes. The 30-40-jointed antennæ are placed very low down, the face being very short, cheeks normally as long as scape, and the frons proportionately large. Temples usually smooth and shining. The scape is incrassate, and the other joints, especially towards the middle, indistinctly discreted, gradually shorter and more slender towards the apex, distinctly pubescent except the basal ones; second flagellar joint normally twice as long as first; third as long as first and second together.

The frons is more or less coarsely arcuately, transversely, or irregularly striate; the occiput has usually several transcarinae close to the posterior tubercles, posteriorly often transversely rugose and laterally irregularly punctate rugose. Temples

usually polished smooth, with a few scattered punctures, rarely distinctly rugose. The cheeks are always distinctly developed and usually about the same length as the scape. The posterior margin of the head is either simple (*serrator*), bordered (*furcatus*), or produced into a more or less distinct collar (*collarifer*).

The pronotum consists of an anterior narrowed neck, which is usually more or less distinctly transrugose, and a posterior crescentic part—herein called the semiannular—which is either entirely smooth or more or less finely rugose, with a narrow polished posterior margin. The mesonotum is curvate in front, rugose or punctate, rarely smooth; it has a central longitudinal row of punctures, sometimes almost obsolete, on each side of which is a smooth space, beyond which are two lateral impressions or rows of punctures. The scutellum is divided into three sections by distinct crenulate sulci, is almost smooth, with a few large punctures on the margins of the lobes, of which the lateral ones are often more or less punctate. The mesopleuræ are deeply impressed above, somewhat smooth and shining, distinctly sculptured below. The metapleuræ are often separated from the median segment by a row of punctures, a sulcus or a carina, or rarely by a sulcus and a carina; less commonly confluent. Of the metanotum proper only a very narrow band, laterally broader triangular, is seen and is longitudinally striate. The median segment is large, usually with large, shallow punctures; sometimes the interstices are alutaceous, and rarely, as in *gigas*, it is rugose, anteriorly often diffusely punctate, and more or less grey pubescent. The abdomen is inserted near the apex of the median segment, not far from the hind coxæ. The petiole is rarely sessile, as in *Schlettererius*, usually nearly as long as the remaining segments together; it is very rarely smooth (*maculipennis*), usually more or less finely trans-striate. The remainder of the abdomen is usually smooth, with a few dull spots, due to microscopic sculpture, more rarely entirely dull. There are seven segments in the male, six in the female, the posterior ones being short and indistinctly discreted. The terebra in female is usually as long as or longer than the whole body, the spicula ferruginous or red, its sheaths entirely black, or white or pale-banded before the apex, rarely rust-red (*insignis*).

The anterior legs are short, their femora and tibiæ comparatively slender, the tarsi five-jointed, the penultimate joint very short and furnished with pencils of hair. The hind legs are very elongate, their coxæ stout, usually transrugose, often with finer striation between coarse transverse ridges. The second joint of the trochanters is indistinct. The hind femora are strongly fusiform, smooth and polished, rarely finely sculptured; on the under side they bear two or three large teeth and a varying number of smaller serrations. The hind tibiæ are compressed either in the basal third, or as far as, or even beyond, the middle and constricted. The hind tarsi are usually five-jointed in the

male and three-jointed in the female; only in *Schlettererius* and *Stephanus serrator* they are five-jointed in the female and three-jointed only in *S. tibiator* male.

Text-figure 1.



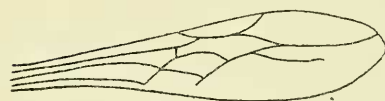
Stephanus.

1. Neuration complete.



Parastephanellus.

2. Discoidal cell $\frac{1}{4}-\frac{1}{3}$ of cubital cell, not touching the submedian, and more or less petiolate. External submedian cell open behind. Radius not extending to margin of wing.



Hemistephanus.

3. Discoidal cell about as large as cubital, touching submedian cell. External submedian cell open behind. Radius extends to margin of wing.



Neostephanus.

4. Cubital and discoidal cells wanting; external submedian cell open behind.



Foenatopus.

5. External submedian cell is indicated by a part of the median nervure only.



Diastephanus.

6. External submedian cell entirely wanting.

The neuration of the wings shows five, apparently constant forms, which have been utilized as the foundation of as many subgenera.

Schultz (Spolia Hymenop. 1906, p. 273) writes: "I cannot accept *Fœnatopus* Sm. or any of the newly-erected genera of *Stephanus* Jur., as they are purely artificial, and useful at most for distinguishing groups of species in this rich genus." Are not most of our genera artificial, and is not their object exactly that stated above? Cameron, again, in Ann. Soc. Ent. Belg. lvi. 1912, p. 358, makes the curious statement: "There are three longitudinal nervures, which is one of the points separating *Stephanus* from *Parastephanus*." There are always three such nervures, the difference being in the development.

When the neururation is complete, as in *Stephanus*, s. str., there are three basal cells: costal, which is very narrow and often indistinct, median and inner submedian; an outer series of three: cubital, discoidal, and external submedian; and a long, somewhat narrow radial cell. The type of this subgenus is *Stephanus serrator* Fab.

In the second form the neururation is similar to that of the second, but the discoidal cell is only about one-fourth of the size of the cubital, and is petiolate, not touching the inner submedian. They are Indo-Australian. Type: *Parastephanelus pygmaeus* Enderl.

In the third form the submedian or posterior nervure is abbreviated, not extending beyond the apex of the inner submedian cell; the external submedian cell is thus open behind. The discoidal cell is about the same size as the cubital, and touches the inner submedian cell on a longer or shorter base. This subgenus, *Hemistephanus* Enderl., is exclusively Neotropical. The type is *H. macrurus* Schlett.

In these three subgenera the stigma is opaque and the bounding nervures indistinct. In the three following subgenera the stigma is smaller, translucent, the bounding nervures distinct, the cubital and discoidal cells wanting.

In the fourth form, *Neostephanus* Kieff., there are three complete basal cells; the median nervure extends to the full length of the outer submedian cell and the second transverse nervure is present, the outer submedian cell being thus bounded on three sides. Type: *Neost. alluaudi* Kieff.

Form five, *Fœnatopus* Smith, differs in having only a short prolongation of the median nervure beyond the basal cells, without any indication of the second transverse nervure. Type: *F. indicus* Westw.

Form six, *Diastephanus* Enderl., has the neururation still further reduced, no nervure extending beyond the basal cells. Type: *D. flavomaculatus* Enderl.

In these three forms the radius does not extend to the margin of the forewing, the radial cell being apically incomplete.

The colour in the majority of species is mainly black, frequently inclining to brownish; the head is often ferruginous or red, antennæ and mandibles basally and the legs more or less red.

A few species are fulvous, as *F. natalicus* Westw. The size varies enormously within the same species, e.g. *S. coronator*, 20–40 mm. The terebra in female varies greatly in different species, but appears to retain the same proportional length in each species. The males are, as a rule, smaller and more slender than the females, although individuals may exceed the size of the smaller females.

Very little appears to be known as to the life-history of these insects. Jurine writes of *S. serrator* as living in dry wood; Montrouzier observed *S. hæmatipoda* flying from trunk to trunk on the edge of a wood; the Cuban *S. brunneus* was taken in some numbers and in both sexes coming out of the same hole in a diseased tree, called Jalia. Roman (Arkiv för zoologi, 1917) considers it to be certain that they are forest insects and parasites on wood-boring larvæ. He found them always round fallen or dead trees, which were infested by the larvæ of Rhyncophora, Anthribidæ, Longicornia, and Buprestidæ. He hazards a conjecture that the special hosts belong to the Brentidæ, which, like the Stephanidæ, are slender, elongate creatures, occurring in all warm countries.

There can be little doubt that the family is more widely distributed and the individuals more numerous than at present supposed. No collector had paid special attention to them till Roman did so in 1914–15 in Brazil, where he took 98 specimens, representing 7 species, all belonging to the subgenus *Hemistephanus*. It is somewhat remarkable that *H. vadosus* accounts for 68 specimens, and that his two new species, *H. angulicollis* and *glabricoxis*, are represented each by one female only. The formation of the prothorax in these is very characteristic.

One difficulty, inseparable from every attempt to compile a monograph without having access to authenticated specimens of every species, lies in the fact that every author has his own methods of description, and lays especial stress on different characters. Schletterer first gave scientific descriptions, including details of the posterior margin of the head, proportions of the basal flagellar joints, relative length of petiole to the remaining segments, and general sculpture.

Enderlein desires to emphasize the value of the microscopic sculpture of the central tergites, while Roman finds in the sculpture of the pronotum valuable characters for the determination of species.

Smith and Cameron have given us many quite worthless descriptions, based largely on colour only, but worst of all are Westwood's notes, one cannot call them descriptions, of *S. diadema* and *frontalis* in the Trans. Ent. Soc. Lond.

What may be the effect of the Great War on the various collections, especially in Belgium, cannot yet be known, but it is certain that the German lust of destruction has caused heavy loss to science in all non-militant branches.

Table of Genera.

- | | | |
|-------|---|------------------------------|
| (2.) | 1. Hind wing with basal cell; abdomen sessile..... | 1. <i>Schlettererius</i> . |
| (1.) | 2. Hind wing without basal cell; abdomen petiolate. | |
| (8.) | 3. Cubital and discoidal cells present; stigma thick, chitinated;
the bounding nervures indistinct | (STEPHANINÆ.) |
| (5.) | 4. Neuration complete | 2. <i>Stephanus</i> . |
| (4.) | 5. Median vein incomplete, outer submedian cell open behind. | |
| (7.) | 6. Discoidal cell about $\frac{1}{3}$ of the size of the cubital cell, does not
touch the submedian cell, but is petiolate; stigma broad. | 3. <i>Parastephanellus</i> . |
| (6.) | 7. Discoidal cell nearly as large as the cubital, and touches the
submedian on a longer or shorter base; stigma narrow,
long, and pointed | 4. <i>Hemistephanus</i> . |
| (3.) | 8. Cubital and discoidal cells wanting; stigma hyaline, bounding
nervures distinct | (FENATOPODINÆ.) |
| (12.) | 9. External submedian cell present partly. | |
| (11.) | 10. " " " open behind only | 5. <i>Neostephanus</i> . |
| (10.) | 11. " " " open apically and behind. | 6. <i>Fenatopus</i> . |
| (9.) | 12. " " " entirely wanting | 7. <i>Diastephanus</i> . |

SCHLETTERERIUS Ashm.

Schlettererius Ashmead, p. 150; *Stephanus* Say, p. 61; Cresson (2), 1880, p. xviii.

This genus appears to agree with *Stephanus* Jur. in the venuration of the fore wings, the formation of the mandibles and the insertion of the antennæ, but differs in having one complete cell in hind wing, abdomen sessile, the basal segment being not, or but little, longer than the second.

Only one species, *S. cinctipes* Cress., has hitherto been recognized, but the description of *S. rufipes* Say, though defective, suffices to place it here. I give the original descriptions.

1. RUFIPES Say, *l. c.*

Stephanus Jur.

"*S. rufipes*. Black; abdomen sessile; thorax not remarkably attenuate before. Inhabits Pennsylvania.

“Body somewhat sericeous; palpi pale yellowish; scutellum with a groove on each side, rough; metathorax rough, and with two slightly elevated longitudinal distant lines; wings hyaline; a large triangular fuscous carpal spot; feet rufous; posterior pair of tarsi dusky; abdomen a little rough at base; oviduct as long as abdomen.

“Length one-fifth of an inch.

“Although the arrangement of the wing nervures agrees precisely with *S. coronatus* Jur., yet the form of the body differs materially, the thorax not exhibiting the remarkable attenuation before, and the abdominal petiole is not visible.”

2. CINCTIPES Cress.

Stephanus cinctipes Cress. (2), p. xviii; Schlett., p. 156. *Schlettererius*, Ashm., l. c.

"♀. Black; labrum, narrow band at base of all the tibiæ, and apical third, except extreme tip of the ovipositor sheaths, white; tarsi testaceous, paler at base; trochanters, apex of first abdominal segment above, and most of the second and third segments, ferruginous; in front of ocelli a sharp semicircular carina, toothed in the middle and on each side; face transversely rugose; cheeks nearly smooth; immediately back of ocelli a series of sharp transverse ridges (sometimes this part is tinged with dull ferruginous); mesothorax finely, transversely wrinkled, the impressed longitudinal lines composed of deep pits; pleuræ and metathorax roughly punctured, the former less so and shining; middle of scutellum smooth and polished; tegulæ dull testaceous; wings pale fuscous towards tips, an angular subhyaline band commencing at base of stigma, apex of wings paler than beneath stigma; all tarsi 5-jointed, the penultimate joint with a long tufted process at the tip beneath; anterior tarsi double the length of their tibiæ and very slender; posterior coxæ large and toothed above near the apex, their femora with two large teeth beneath, and a number of small unequal teeth between and on either side of them; their tibiæ not much thickened toward tip and not dilated; their tarsi about two-thirds the length of the tibiæ, with the first joint rather longer than the second, which is about equal in length with the third; abdomen smooth and polished, except the first segment, which is finely roughened and not longer than the posterior coxæ; ovipositor about double the length of the body. Length .55-.75 inch."

Habitat: Washington Territory (Morrison).

Schletterer (*l. c.*) gives the habitat as "Subreg. 3. United States, Massachusetts, Pennsylvania, Washington, New York," and adds that *S. cinctipes* is connected with the European *S. serrator* by its 5-jointed hind tarsi, and partly by the style of its sculpture, but differs in having two large teeth on the hind femora (*serrator* has three), in the sheaths of the terebra being white-banded before the apex, etc.

Ashmead (*l. c.*) says: "Posterior tarsi in both sexes normal, unarmed." This appears to be a misprint for "femora," and is incorrect since *cinctipes* has the hind femora armed with two large teeth beneath.

S. coronatus Panz., Jur., etc. is a synonym of *S. serrator* Fab. The two species differ in size, colour, and especially in the relative length of terebra; both occur in Pennsylvania.

Say (*l. c.*) states that the neururation of his *rufipes* agrees precisely with that of *S. coronatus* Jur., but does not especially mention the basal cell in hind wing.

STEPHANUS.

The designation *Stephanus* Jur., originally applied to the whole family, was restricted by Enderlein (2), p. 473, to the species possessing "complete" neurulation, comprising three basal cells, the costal, median and inner submedian, and three outer cells, cubital, discoidal, and external or outer submedian, together with a closed radial cell; and I follow him in calling this group, so characterized, the subgenus *Stephanus*.

Unlike other subgenera, it is distributed throughout the whole range of the family, and to it belong the few known European species.

There does not appear to be any character, other than the neurulation, by which the species of this subgenus can be distinguished from those of any other. As a rule they are large insects, mainly black, often with a red head, but size varies in the females from 10-40 mm.

The terebra varies from slightly shorter than the body to twice its length. The males are mostly smaller than the females, though in some species the few specimens known of both sexes are nearly of the same size. Temples smooth and shining, unless otherwise stated.

The type of the subgenus is *S. serrator* Fab., which is unfortunate in some respects, as it has five-jointed hind tarsi in both sexes and tridentate femora; the former character is unique and the latter is shared only by *S. borneensis* Sauss. *S. tibiator* Schlett., from Aden, is exceptional in having the hind tarsi three-jointed in the male.

The characters utilized for differentiation of species in the following table are: 1st, number of joints in hind tarsi; 2nd, sculpture of temples; 3rd, colour of sheaths of terebra. Other important points are: relative proportion of petiole to rest of abdomen; sculpture of head and thorax; length of basal antennal joints: and colour of wings.

The colour of the head (black, red, or, in one case, yellow) is a good distinction; here, as among Coleoptera, it is often found the black shows a tendency to become rufescent, but can never be mistaken for a true red.

Table of Species.

♀.

- | | | |
|------|--|------------------------------|
| (2.) | 1. Hind tarsi 5-jointed; hind femora tridentate; temples finely rugose-punctate. 8-17 mm. | 1. <i>serrator</i> Fab. |
| (1.) | 2. Hind tarsi 3-jointed; hind femora bidentate (except No. 25). | |
| (8.) | 3. Temples coarsely rugose-punctate. | |
| (5.) | 4. Antennæ very short; temples with a smooth space behind eyes; head bordered; mesonotum entire..... | 2. <i>antinorii</i> Gribodo. |
| (4.) | 5. Antennæ normal. | |
| (7.) | 6. Temples with smooth raised space behind eyes; prothorax normal; hind femora slender..... | 3. <i>gigas</i> Schlett. |

- (6.) 7. Temples without smooth space behind eyes; prothorax with an inflated ring between neck and semiannular; hind femora very incrassate..... 4. *tibiator* Schlett.
- (3.) 8. Temples smooth.
- (22.) 9. Sheaths of terebra entirely black.
- (11.) 10. Frons coriaceo-granulate, legs entirely smooth ... 5. *nigricauda* Sichel.
- (10.) 11. Frons arcuate or trans-rugose, legs distinctly sculptured.
- (15.) 12. Frons arcuate rugose.
- (14.) 13. Petiole shorter than rest of abdomen; terebra about one-third longer than body; head red [Schlett. 6. *pachylomerus*
- (13.) 14. Petiole longer than rest of abdomen; terebra half as long again as body; head pale yellow, black banded. [Cam. 7. *xanthocephalus*
- (12.) 15. Frons coarsely, irregularly, or transversely rugose.
- (17.) 16. A distinct sulcus across vertex and part of occiput; terebra nearly half as long again as body; wings infumate, centrally darker 8. *sulcifrons* Schlett.
- (16.) 17. No distinct sulcus on head or occiput.
- (19.) 18. Dark chestnut-brown; sheaths of terebra blue-black. 9. *brunneus* Cam.
- (18.) 19. Head black; body chiefly black.
- (21.) 20. Petiole and hind coxæ coarsely transrugose; wings infusate. 10. *unicolor* Schlett.
- (20.) 21. Petiole finely trans-striate; hind coxæ smooth; wings sub-hyaline, iridescent 11. *hornianus* Enderl.
- (9.) 22. Sheaths of terebra white-banded before apex.
- (42.) 23. Posterior margin of head simple, not bordered or reflexed.
- (33.) 24. Terebra about as long as body.
- (30.) 25. Head black.
- (29.) 26. Second flagellar joint twice as long as first, third little shorter than first and second together.
- (28.) 27. Mesonotum confluent punctate; hind femora shining, smooth 12. *andinus* Schlett.
- (27.) 28. Mesonotum irregularly rugose-punctate; hind femora dull. 13. *sickmanni* Schlett.
- (26.) 29. Second and third flagellar joints of equal length and little longer than first..... 14. *crassicauda* Morley.
- (25.) 30. Head not black.
- (32.) 31. Head, anterior femora and tibiæ mostly, and all tarsi red. 15. *tarsatus* Sichel.
- (31.) 32. Head yellow, body dull ferruginous 16. *texanus* Cress.
- (24.) 33. Terebra distinctly longer than body.
- (35.) 34. Petiole basally smooth, head granulate, mesonotum coriaceo-punctate 17. *europæus* Sichel.
- (34.) 35. Petiole basally striate, head and mesonotum otherwise sculptured.
- (37.) 36. Mesonotum smooth, 2nd and 3rd flagellar joints of equal length and little longer than first 18. *tortus* Morley.
- (36.) 37. Mesonotum more or less punctate.
- (41.) 38. Mesonotum rugose-punctate.
- (40.) 39. Median segment centrally densely punctate, laterally diffusely. Head and thorax black, abdomen brown, petiole rufescent. 19. *anomalipes* Fst.
- (39.) 40. Median segment evenly rugose-punctate throughout. Head and thorax ferruginous, abdomen red-brown, petiole nigrescent 20. *bicolor* Westw.
- (38.) 41. Mesonotum diffusely punctate, median segment coarsely reticulate 21. *nigricans* (Sichel).
- (23.) 42. Posterior margin of head bordered or reflexed.
- (60.) 43. Posterior margin of head bordered but not reflexed.

- (49.) 44. Terebra about as long as or very little longer than body.
 (46.) 45. Petiole much shorter than rest of abdomen, mesonotum finely trans-striate and diffusely punctate 22. *niger* Smith.
 (45.) 46. Petiole as long as or very slightly shorter than rest of abdomen, mesonotum not trans-striate.
 (48.) 47. Wings brown, centrally darker 23. *froggatti* Cam.
 (47.) 48. Fore wings hyaline, with steely iridescence 24. *ceylonicus* Cam.
 (44.) 49. Terebra distinctly longer than body.
 (51.) 50. Hind femora tridentate, forewings fuscous, with darker spot or fascia in middle 25. *borneensis* Sauss.
 (51.) 51. Hind femora bidentate.
 (55.) 52. Wings evenly infumate.
 (54.) 53. Frons arcuate rugose; metapleuræ coriaceous above, diffusely punctate beneath; entirely black or black-brown. 26. *furcatus* Lep. & Serv.
 (53.) 54. Frons irregularly rugose, metapleuræ densely punctate, head red 27. *ruficeps* Sauss.
 (52.) 55. Wings centrally or distally darker.
 (59.) 56. Wings centrally darker, petiole shorter than rest of abdomen.
 (58.) 57. Head not impressed behind vertex, semiannular smooth, mesonotum posteriorly confluent punctate ... 28. *coronator* Fab.
 (57.) 58. Head compressed behind vertex, semiannular transrugose, mesonotum posteriorly coarsely transrugose ... 29. *ducalis* Westw.
 (56.) 59. Wings infumate, external median and submedian cells and then to margin of wing dark brown, petiole as long as rest of abdomen 30. *lanceolatus* Kieff.
 (43.) 60. Posterior margin of head reflexed, collar-like.
 (62.) 61. Wings strongly infumate, centrally darker; petiole shorter than rest of abdomen 31. *hæmatipoda* [Montrz.
 (61.) 62. Wings slightly infusate or hyaline, petiole as long as rest of abdomen.
 (64.) 63. Head black, cheeks pale marked, median segment cribrate punctate 32. *acutus* Lep. & Serv.
 (63.) 64. Head red, median segment confluent punctate. . 33. *villosus* Kieff.

♂.

- (2.) 1. Hind tarsi 3-jointed, hind femora bidentate 4. *tibiator* Schlett.
 (1.) 2. Hind tarsi 5-jointed.
 (6.) 3. Hind femora tridentate.
 (5.) 4. Mesonotum irregularly rugose, metapleuræ rugose; wings hyaline, centrally and apically infusate 1. *serrator* Fab.
 (4.) 5. Mesonotum cribrate punctate, metapleuræ densely punctate; fore wings with transverse dark band 25. *borneensis* Sauss.
 (3.) 6. Hind femora bidentate.
 (10.) 7. Posterior margin of head produced, collar-like.
 (9.) 8. Posterior margin of head translucent but not reflexed. Metapleuræ and median segment partly confluent punctate. 33. *villosus* Kieff.
 (8.) 9. Posterior margin of head reflexed. Lateral lobes of scutellum coarsely punctate; metapleuræ and median segment not confluent punctate 36. *pilosus* Elliott.
 (7.) 10. Posterior margin of head bordered, but not collar-like.
 (12.) 11. Wings subhyaline green and red iridescent; outer orbits are white-marked 11. *hornianus* Enderl.
 (11.) 12. Wings not iridescent.
 (20.) 13. Wings infumate, centrally darker.
 (17.) 14. Head red.

- (16.) 15. Head impressed behind vertex; semiannular transrugose; mesonotum centrally smooth, metapleuræ coarsely rugose. 29. *ducalis* Westw.
- (15.) 16. Head not impressed behind vertex; semiannular smooth; mesonotum densely, partly confluent punctate; metapleuræ densely punctate. 28. *coronator* Fab.
- (14.) 17. Head black.
- (19.) 18. Second and third flagellar joints of equal length and little longer than first; median segment densely punctate; petiole shorter than rest of abdomen, trans-striate throughout. 23. *rubripes* Morley.
- (18.) 19. Second flagellar joint twice as long as first, third distinctly longer than second; median segment diffusely punctate; petiole smooth, only basally rugose. 34. *rufemoratus* [Szépl.]
- (13.) 20. Wings not centrally darker.
- (28.) 21. Wings more or less infumate.
- (25.) 22. Thorax confluent punctate.
- (24.) 23. Petiole trans-striate, rest of abdomen smooth and shining. Dark chestnut-brown. 9. *brunneus* Cress.
- (23.) 24. Petiole very finely transaciculate, rest of abdomen finely alutaceous. Black; head and anterior legs red. 35. *comma* Morley.
- (22.) 25. Thorax otherwise sculptured.
- (27.) 26. Vertex transrugose; median segment scrobiculate reticulate; hind coxæ trans-striate. Black; head red. 15. *tarsatus* Sichel.
- (26.) 27. Vertex arcuate striate; median segment densely, partly confluent punctate; hind coxæ finely striate between coarse scale-like rugosities. Black to dark brown, cheeks white-marked. 26. *furcatus* Lep. & [Serv.]
- (21.) 28. Wings clear hyaline; vertex and occiput longitudinally carinate. 37. *rugosus* Elliott.

1. SERRATOR Fab.

Ichneumon No. 193, Zschah, i. p. 60, ♀; tab. *Synistata*, fig. 193, ♀, 1789. *Ichneumon serrator* Fab. (1), p. 224, ♀, 1798. *Stephanus coronatus* Panz., pl. et fig. 13, 1801, ♀; Jur., tab. 7, ♀; Lep. & Serv., p. 489, pl. 376, fig. 2 a, b, c, ♀; Nees ab Es., i. p. 8, 1834, ♀; Blanch., p. 23. *Bracon serrator* Fab. (2), p. 108, ♀. *Ichneumon coronatus* Latr., p. 179, ♀. *Xorides coronatus* Lamarck, p. 135; l. c. iv. Ed. 2, 1835, p. 347. *Stephanus serrator* Brull., p. 537, ♀; Westw. (4), p. 227, ♀; Sichel (2), p. 472, ♀ ♂; Schlett., p. 91, ♀ ♂; André, p. 481, ♀ ♂.

♀ ♂. Head with frons moderately coarsely and regularly, occiput more finely and irregularly rugose, arcuately near the posterior ocelli. Temples finely rugose-punctate, with a small smooth raised space behind eyes. Posterior margin of head simple. Second flagellar joint twice as long as first, third longer than second, but shorter than first and second together. Neck coarsely transrugose, semiannular more finely. Mesonotum coarsely and irregularly rugose, more finely to nearly smooth in front, with a distinct central longitudinal channel and two lateral divergent rows of small punctures. Mesopleuræ coriaceous rugose, with coarser reticulations behind; scutellum centrally smooth, laterally longitudinally rugose; metapleuræ rugose, but less coarsely than the median segment, from which they are

separated by a distinct sulcus. Petiole stout, irregularly rugose, basally more coarsely, much shorter than the remaining feebly shining part of abdomen. Terebra longer than body, its sheaths entirely black. Hind legs with the coxæ finely coriaceous; femora tridentate, tibiæ constricted beyond middle and longer than femora; hind tarsi five-jointed in both sexes.

Black; antennæ basally brown; mandibles basally ferruginous, cheeks white-marked; abdomen rufescent, apically black, or entirely black; legs brown, rufescent beneath, their joints whitish. Wings basally hyaline, centrally and apically slightly infusate.

Length 8-17 mm.

Habitat: Germany, France, and Central Europe.

The tridentate hind femora and five-jointed hind tarsi will suffice to distinguish this species ♀, and the only other ♂ with the former character (*borneensis* Sauss.) is nearly twice as large.

2. ANTINORII Grib.

Megischus antinorii Gribodo, p. 346, ♀. *Stephanus ant.* Schlett., p. 108; W. A. Schulz (2), p. 16, ♀.

♀. Frons moderately shining, densely and irregularly, not arcuately, reticulate rugose. Five frontal tubercles (not six as stated by Gribodo in his original description), of nearly equal size, a triangular space in front of the anterior ocellus shining smooth. Vertex densely, coarsely, and deeply rugose-punctate, with five curved carinæ in front and a longitudinal impression behind. Occiput coarsely but diffusely and not deeply rugose-punctate, without longitudinal impression. Posterior margin of head sharply bordered. Cheeks rather shorter than scape and as long as second flagellar joint, shining smooth and diffusely punctate. Temples with a smooth shining protuberance near eyes (as in *gigas*), above it coarsely and deeply punctate, below densely and coarsely rugose-punctate. Antennæ unusually short, 32-jointed, reaching only to the base of median segment; second flagellar joint two and a half times as long as first, third only as long as second. Neck weakly transrugose, separated by a right-angled impression from the semiannular, which is densely and coarsely rugose-punctate, with a broad smooth posterior margin. Prosternum shining, anterior third finely rugose-punctate, remainder smooth with very sparse and deep punctures. Mesonotum entire, centrally almost smooth, otherwise very coarsely, but not deeply or densely rugose-punctate. Scutellum shining, with a few punctures on the lateral lobes, and the borders of central lobe finely striated. Mesopleuræ densely and coarsely reticulate, with a smooth shining space below tegulæ and above middle coxæ. Metapleuræ prominent, coarsely reticulate rugose, with a broad, deep, and curvately carinate impression in front and a similar smoother impression behind. Median segment discally extremely coarsely reticulate, laterally rugose, separated from

the metapleuræ by a fine longitudinal carina, behind which is a narrow sulcus. Petiole basally transrugose, then finely trans-striate, apically smooth, shorter than rest of abdomen. Terebra nearly as long as body, ferruginous, sheaths entirely black. Hind legs with coxæ stout, with setiferous punctures in front, more sparse towards middle, apically finely trans-striate; femora inflated, microscopically finely and densely alutaceous and punctate.

Head, thorax laterally, legs including tibiæ and petiole beneath with long, sparse, coarse hairs; similar but shorter and finer hairs on abdomen.

Wings hyaline, apically infumate, stigma opaque, nervures pitch-brown.

Black; mandibles and antennæ red-brown; cheeks and base of anterior femora red-yellow. Wings faintly iridescent.

Length 25 mm. Terebra 23 mm. (Gribodo: 26 mm.; terebra 20 mm.)

Habitat: Mahal Uonz, Shoa, East Africa, 1 ♀ taken by Marquis Orazio Antinori. Described from the unique type in the Museum at Genoa by W. A. Schulz.

The extremely short antennæ and six frontal tubercles, as described by Gribodo, inclined Schletterer to doubt this species being a true *Stephanus*, but the latter character proves to be a mistake, the five frontal tubercles being quite normal; and Schulz states that the right antenna is complete, the apical joint is normally pointed and $1\frac{1}{2}$ times as long as the penultimate, not showing any signs of being abnormally formed or dwarfed.

This species resembles *S. gigas* and *S. tibiator* Schlett. in the very coarse sculpture of the body and especially of the temples, but differs from both in the unusually short antennæ. From *S. gigas* it may be further distinguished by the bordered posterior margin of the head and by the broadly smooth posterior margin of prothorax; from *S. tibiator* it differs in the absence of the longitudinal sulcus on occiput, in the formation and sculpture of the prothorax, etc. No other specimen having been yet taken, it must remain uncertain whether the short antennæ are truly characteristic of the species.

3. GIGAS Schlett.

Stephanus gigas Schlett., p. 96.

Frons very coarsely and irregularly rugose; occiput arcuately rugose near the posterior ocelli, behind this centrally transversely, laterally irregularly rugose. Temples covered with dense, rather deep and partly confluent punctures, excepting a smooth space behind ocelli. Posterior margin of head simple. Second flagellar joint fully twice as long as first, third only as long as second. Neck coarsely transrugose, semiannular coarsely rugose-punctate throughout, excepting an indistinctly rugose impression near tegulæ. Mesonotum centrally somewhat smooth,

with a central longitudinal row of broad and deep punctures, and two deep, divergent sulci, laterally very coarsely rugose-punctate. Central section of scutellum smooth, with a few marginal punctures; lateral lobes densely, coarsely, and partly confluent punctate. Metapleuræ and median segment very coarsely and reticulately rugose, separated by a deep rugose sulcus. Hind legs with the coxæ short and stout, transrugose, more finely behind; femora comparatively small and slender, polished smooth, with two large teeth; tibiæ much longer than femora and compressed only in basal third.

Black; mandibles basally and hind coxæ ferruginous, antennæ with basal half brownish.

Habitat: Schiras, Persia. Type in Imp. Nat. Hist. Museum, Vienna.

This description was taken from a specimen without abdomen, and as no mention is made as to the number of hind tarsal joints, the sex cannot be determined. It appears to resemble closely *S. tibiator* Schlett. from Aden, in the coarse sculpture of head and temples, though differing in the structure of pronotum and in the slender hind femora.

4. *TIBIATOR* Schlett.

Stephanus tibiator Schlett., p. 293, ♀ ♂; Morley (1), pp. 34 & 112, ♀.

♀ ♂. Frons very coarsely and irregularly to reticulately rugose; vertex obliquely arcuate rugose; occiput very irregularly punctato-rugose, with a central longitudinal impression. Temples coarsely and deeply punctate, posteriorly more diffusely and cleanly, near the cheeks more densely and confluent. Cheeks feebly punctato-rugose. Second flagellar joint twice as long as first, third slightly more slender than second and but little longer. Neck very short, laterally coarsely rugose, above with two large foveæ separated by a longitudinal carina; then follows a coarsely rugose-punctate inflated part, separated by a distinct constriction from the semiannular, which is apically coarsely rugose, centrally and laterally densely and partly confluent punctate, with a polished smooth posterior margin. Mesonotum centrally diffusely punctate, apically and laterally rugose; scutellum smooth with diffuse punctures, its three lobes defined by crenulated sulci. Mesopleuræ rather coarsely and irregularly rugose in the upper impressed part, irregularly to reticulately rugose beneath, with a smooth, shining, and diffusely punctate space near the tegulæ; metapleuræ very prominent, coarsely and irregularly rugose, separated by a deep sulcus from the coarsely reticulate rugose median segment. Petiole trans-striate, apically smooth and shining. Terebra shorter than body, sheaths entirely black. Hind legs with coxæ basally densely aciculate punctate, apically transrugose; femora strikingly

incrassate, bidentate, smooth and shining, with diffuse setiferous punctures: tibiæ as long as femora, compressed to about middle; tarsi three-jointed in both sexes.

Black, with a tendency to brownish, especially in the cheeks and tarsi. Antennæ ferruginous in ♀, black in ♂. Wings hyaline.

In ♂ the rugosity of the semiannular is more pronounced than the puncturation; the lateral lobes of the scutellum are more rugose than punctate; the abdomen is longer and more slender in ♀.

Length ♀, 21–24 mm.; abdomen 16–18 mm.; petiole 10–11½ mm.; terebra 20–22 mm.; ♂, 21 mm.

Habitat: Aden; Ruaha River, late German East Africa.

This species appears to differ from *S. gigas* Schlett. in the formation of the prothorax and in the strikingly incrassate hind femora.

In some respects it resembles *S. pachylomerus* Schlett., from which it may be distinguished by the coarsely punctate temples, formation of the prothorax, and by the shorter petiole and terebra.

It resembles *S. antinorii* in size, length of terebra, and incrassate hind femora—this last is not uncommon among the African species. It differs in the longitudinal occipital sulcus, structure and sculpture of prothorax, formation of mesothorax and sculpture of mesopleuræ.

S. tibiator ♂ is distinguished from all others yet known by the hind tarsi being three-jointed, and is the only known exception to the rule, that the males of this family have those tarsi five-jointed.

S. serrator ♀ alone has the hind tarsi five-jointed, otherwise they are invariably three-jointed.

5. NIGRICAUDA Sichel.

Megischus nigricauda Sichel (2), p. 479, ♀. *Stephanus n.* Schlett., p. 106, ♀.

♀. Frons coriaceo-granulate, vertex arcuate rugose; occiput with basal third trans-striate, remainder smooth polished. Pronotum smooth and shining, neck subquadrate; mesonotum almost impunctate, smooth and shining; with an anterior longitudinal impression, separated from the smooth polished scutellum by a row of punctures; median segment scrobiculate reticulate. Petiole finely trans-striate, remainder of abdomen smooth polished. Terebra as long as body, sheaths black. Legs, especially the hind ones, smooth and shining; hind femora bidentate.

Black; head red, vertex black, cheeks pale marked; mandibles basally and two or three basal antennal joints red or rufescent; anterior tarsi rufous, middle tarsi white-banded, base of hind

metatarsus and whole of following joints white, claws black. Wings flavescent, costa beyond stigma black; nervures fuscous.

Length of body and terebra 15–16½ mm. Wings 8–8½ mm.

Habitat: Manila (Luzon). Prof. Sæmper. 2 ♀ ♀.

Sichel remarks on the variability of the serrations between the large teeth. In one specimen one of these, near the apex of femora, amounts almost to a third tooth, while on the other specimen this is present on one femur only.

The coriaceo-granulate frons, the very smooth pro- and mesonotum, and the apparent absence of all sculpture on the legs suffice to distinguish this species.

6. *PACHYLOMERUS* Schlett.

Stephanus pachylomerus Schlett., p. 98, ♀; Morley (1), p. 111.

♀. Frons coarsely arcuate rugose; vertex very convex and arcuate to transverse rugose; occiput transrugose. Posterior margin of head simple. Temples centrally prominent, very shining; cheeks shorter than scape. Second flagellar joint more than twice as long as first, third only as long as second. Neck very short, with a deep oblique impression, and superficially punctate-rugose; semiannular polished, with very diffuse fine punctures. Mesonotum with medium-sized and partly confluent punctures. Scutellum smooth, margins of lobes obliquely striate. Mesopleuræ with the upper impressed part oblique rugose in front, smooth behind, the lower convex part diffusely punctate. Metapleuræ coarsely and irregularly rugose, separated from the cribrate-punctate median segment by a deep, slightly rugose sulcus. Petiole finely transrugose, distinctly shorter than the rest of abdomen; second segment shining smooth, basally feebly rugose, the remainder rather dull. Terebra longer than body, its sheaths entirely black. Hind legs with coxæ strongly shining, diffusely punctate; femora very incrassate, smooth, diffusely punctate, bidentate; tibiæ slightly longer than femora, compressed nearly to middle.

Black; head, base of mandibles, scape, third segment entirely and legs partly red; apical abdominal segments more or less rufescent. Wings subhyaline, discal and external submedian cells infusate.

Length 28 mm.; terebra 35 mm.

Habitat: West Africa (Gaboon); type in Nat. Hist. Museum, Hamburg. Gold Coast; in coll. British Museum.

This species resembles *S. coronator* and *ducalis* in shape and colour, but may be easily distinguished by the entirely black sheaths of the terebra, prominent temples, weaker puncturation of mesothorax and more incrassate hind femora. From *S. sulcifrons*, which it also resembles, it may be known by the absence of the sulcus on vertex and by the simple posterior margin of head. It differs from *S. xanthocephalus* Cam. in the short pronotum, sculpture of prothorax and hind coxæ, and in coloration.

7. XANTHOCEPHALUS Cam.

Stephanus xanthocephalus Cameron (10), p. 358, ♀.

♀. Frons strongly arcuate striate; vertex irregularly arcuate rugose, occiput finely and closely trans-striate; posterior margin of head simple. Pronotum densely and rather strongly trans-striate; mesonotum shining, irregularly striate and punctate, basal half centrally smooth. Scutellum smooth, apically sparsely punctate. Pleuræ smooth, white pubescent. Median segment with large, diffuse punctures, apically irregularly trans-striate. Petiole finely and closely striate, apically more strongly, longer than rest of abdomen. Terebra half as long again as body, sheaths entirely black. Hind legs with coxæ densely striate, femora with two large teeth, one medium and two very small.

Black; head pale yellow, with broad black band from occiput to posterior tubercles; scape testaceous; antennæ black; third segment partly, ventral surface and apical segment entirely rufous; apices of femora, anterior tibiæ and tarsi, apex of hind tibiæ, and hind metatarsus rufo-testaceous. Wings hyaline, posterior discoidal cell infumate, stigma and nervures black.

Length 28 mm.; terebra 43 mm.

Habitat: Dima, West Africa. A. Koller. Type in Congo Museum, Tervouren.

The pale yellow, black-banded head is very distinctive.

8. SULCIFRONS Schlett.

Stephanus sulcifrons Schlett., p. 110, ♀. ? *Megischus insidiator* Smith (3), p. 7 ♂.

♀. Frons coarsely and obliquely to irregularly rugose, vertex transrugose, the rugosity gradually passing into puncturation on occiput, and all sculpture disappearing at back of head; a very distinct longitudinal sulcus across vertex and part of occiput; posterior margin of head strongly bordered; cheeks rather shorter than scape. Second flagellar joint twice as long as first, third shorter than first and second together. Neck coarsely and obliquely rugose; semiannular rather closely and partly confluent punctate, its posterior margin polished smooth. Mesonotum diffusely and coarsely punctate. Scutellum smooth, with a few conspicuous marginal punctures. Mesopleuræ feebly rugose and shining in the upper impressed part, punctate below; metapleuræ very coarsely and densely punctate, separated from the coarsely cribrate-punctate median segment by a deep and smooth sulcus. Petiole transrugose, apically smoother, shorter than rest of abdomen, which is basally shining, otherwise dull. Terebra much longer than body, sheaths entirely black. Hind legs with coxæ coarsely transrugose; femora entirely smooth, bidentate, the tibiæ longer than femora, compressed to beyond middle.

Black; head, two basal antennal joints, anterior legs and hind tarsi red or ferruginous. Wings slightly infusate, centrally darker.

Length 23 mm.; terebra 30 mm.

Habitat : Mindanao, Philippines. Type in Museum at Hamburg.

♂ (?). *M. insidiator*, Smith. "Male. Length 9 lines. The head and base of the antennæ ferruginous; the former transversely striated, with the posterior margin of the vertex smooth and shining, or with a few punctures. Thorax strongly, but not closely punctured; wings fusco-hyaline, the anterior and intermediate tibiæ rufo-testaceous, with the femora obscurely so; the posterior femora with two stout teeth beneath and six minute ones between them; the posterior tibiæ at their apex, and the tarsi pale rufo-testaceous. The abdomen elongate, lanceolate at the apex, and entirely smooth and shining. *Hab.* Mysol."

This species may be best known from the very similar *S. corinator* F. by the sulcus on vertex and entirely black terebral sheaths; the latter character and the smaller size will distinguish it from *S. ducalis* Westw. Smith's description of his *insidiator* is defective, but it may be the male of *sulcifrons*, which it appears to resemble.

9. BRUNNEUS Cress.

Megischus brunneus Cresson (1), p. 84, ♀ ♂.

♀. Head coarsely rugose, vertex deeply trans-striate. Thorax coarsely and confluent punctate; apex of median segment trans-rugose. Petiole trans-striate, remaining segments shining smooth. Terebra longer than body, spicula brown, sheaths blue-black. Hind femora bidentate, the anterior tooth largest; hind tibiæ compressed in basal third; hind tibiæ 3-jointed, metatarsus much dilated. All tarsi yellow pubescent beneath.

Dark chestnut-brown, antennæ blackish, scape brown, legs brown, knees yellowish, posterior femora and tibiæ externally nigrescent. Wings subhyaline, tinged with fuscous; stigma and nervures black, former with basal pale spot.

Length 1-11 lines (14-23 mm.); terebra 9-13½ lines (18-27 mm.); fore wings 9½-14½ lines (19-29 mm.)

♂. Similar to ♀, but more slender; the two teeth on hind femora equal in size, hind tibiæ less dilated, all tarsi five-jointed, hind metatarsus not dilated.

Length 9 lines (18½ mm.); alar expanse 9½ lines (19 mm.)

Habitat : Cuba.

"Collection Ent. Soc. Philad. Two ♀ ♀, two ♂ ♂ specimens. Both ♂ and ♀ of this species were taken by Dr. Gundlach in considerable numbers, coming out of the same hole in the trunk of a diseased tree, called *Jalia* in Spanish."

10. UNICOLOR Schlett.

Stephanus unicolor Schlett., p. 104, ♀.

♀. Frons rather coarsely and irregularly to arcuately rugose; occiput transrugose, more coarsely near the ocelli; posterior margin of head with raised border; cheeks as long as scape.

Second flagellar joint one and a half times as long as first, third fully twice as long as first, but shorter than first and second together. Neck very short, laterally coarsely rugose, bifoveate above; semiannular smooth and shining, with a few anterior and lateral superficial punctures. Mesonotum diffusely punctate, with a distinct row of central punctures. Scutellum polished smooth, with a few lateral punctures. Mesopleuræ smooth above, feebly rugose and diffusely punctate beneath; metapleuræ coarsely reticulate to irregularly rugose, separated by a smooth shining sulcus from the median segment, which is reticulate to cribrate punctate. Petiole moderately coarsely transrugose, little shorter than the rest of abdomen, the central segments more or less dull, the basal and apical segments shining smooth. Terebra as long as body, sheaths entirely black. Hind legs with coxæ coarsely transrugose; femora stout and polished, bidentate; tibiæ compressed to beyond middle.

Black; the head shows a tendency to become red on the frons, pale yellow on cheeks and temples; scape ferruginous, anterior legs brown to rufescent. Wings slightly infusate.

Length 14 mm.

Habitat: Mindanao, Philippines. Type in Nat. Hist. Museum, Hamburg.

This species is somewhat similar to *S. sulcifrons* Schlett., but only half as large and wanting the distinctive vertical sulcus. It also resembles *F. indicus* West., *D. leucodontus* Schlett., and *D. pallescens* Schlett., from all of which it may be known by the neururation.

11. *HORNIANUS* Enderl.

Stephanus hornianus Enderl. (5), p. 12, ♀ ♂.

♀ ♂. Frons coarsely transrugose; vertex with four transcarinae; occiput irregularly rugose. Second flagellar joint shorter than third. Neck trans-striate; semiannular smooth polished, with a row of punctures before posterior margin. Propleuræ trans-striate, mesopleuræ smooth, lower half punctate, apex subrugose; metapleuræ widely reticulate, separated from the median segment by a very deep, smooth, and shining sulcus. Median segment widely reticulate, basally diffusely punctate, apically densely transrugose. Petiole finely trans-striate, as long as, or slightly shorter than remainder of abdomen. Terebra in ♀ rather longer than body. Hind legs with coxæ shining smooth, diffusely punctate, transrugose in front and behind; femora diffusely punctate, bidentate.

Black; a yellow spot on outer orbits; petiole and legs except coxæ and hind femora ferruginous; last tarsal joint black. Wings subhyaline, with red and green transverse iridescence on outer margin; stigma and nervures black.

Length? Habitat: Ceylon.

Enderlein appears not to have given the size of this species, but as he compares it with *S. ceylonicus* Cam. and *S. hematipoda* Montrz., it is probably about 28–30 mm. The former of the above species is said to resemble the present one in colour, with the same spot on the outer orbits, but the sculpture of the meso- and meta-pleuræ differs, the petiole is black, and the wings have a steely iridescence.

12. ANDINUS Schlett.

Stephanus andinus Schlett., p. 138, ♀.

♀. Frons somewhat coarsely and irregularly rugose; occiput transrugose, coarsely in front, more regularly towards the eyes. Temples finely but distinctly obliquely rugose, with a smooth space behind eyes. Posterior margin of head simple. Second flagellar joint twice as long as first, third a little shorter than first and second together. Neck rather coarsely transrugose; semiannular finely but distinctly obliquely rugose. Mesonotum coarsely and confluent punctate, the usual median row of punctures wanting and the two lateral impressions represented by indistinct rows of punctures. Scutellum coarsely and diffusely punctate. Mesopleuræ above finely alutaceous and dull, beneath slightly shining and diffusely punctate; metapleuræ dull, finely and diffusely punctate, separated from median segment by a deep and dull sulcus. Median segment diffusely but deeply punctate, apically transrugose and with distinct lateral sulci. Petiole trans-striolate, basally more irregularly rugose, shorter than rest of abdomen, which is discally dull, laterally shining. Terebra as long as body, sheaths white-banded before apex. Hind legs with coxæ trans-striolate; femora shining smooth, bidentate; tibiæ constricted not quite to middle.

Black; cheeks pale marked; the anterior legs, especially the tarsi, tend to become brownish. Wings hyaline.

Length 19–20 mm.

Habitat: Colombia. Type in Royal Nat. Hist. Museum, Berlin.

This species differs from *S. acutus* Lep. & Serv. in the simple posterior margin of head, coarser puncturation of mesonotum, and shorter petiole. From *S. niger* Smith it may be known by the finer sculpture of the frons, obliquely rugose temples, and rugose semiannular.

13. SICKMANNI Schlett.

Stephanus sickmanni Schlett., p. 152, ♀.

♀. Frons coarsely and irregularly rugose; occiput anteriorly arcuately, posteriorly transversely, and laterally irregularly rugose. Temples with a few apical punctures. Posterior margin of head simple. Cheeks slightly longer than scape. Basal flagellar

joints normal. Neck coarsely transrugose, semiannular distinctly transrugose and finely punctate, with smooth posterior margin. Mesonotum coarsely and irregularly rugose-punctate. Scutellum centrally smooth, laterally with diffuse to dense and partly confluent punctures, lateral lobes smooth in front, densely and confluent punctate behind. Mesopleuræ above distinctly alutaceous, shining smooth, with diffuse punctures below; metapleuræ diffusely punctate, more densely in front, separated from median segment by a very shallow and alutaceous sulcus. Median segment rather coarsely and diffusely punctate, longitudinally rugose round insertion of petiole, marginal furrows indistinct. Petiole centrally smooth, basally and apically somewhat rugose, shorter than remainder of abdomen, which is apically dull. Terebra about as long as body, sheaths white-banded before apex. Hind legs with coxæ coarsely transrugose above, laterally more irregularly; femora subglabrous, bidentate; tibiæ compressed not quite to middle.

Black; cheeks pale marked; antennæ, mandibles basally and the legs, especially about the joints, tend to become rufous. Wings almost hyaline.

Length 24-25 mm.

Habitat: Georgia, U.S.A. Type in Royal Nat. Hist. Museum, Berlin. Named after Prof. Franz Sickmann, of Iburg, Hanover.

This species resembles small individuals of *S. furcatus* Lep. & Serv., from which it differs in the shorter petiole and terebra, and sculpture of prothorax and mesonotum. For differences between this species and *S. bicolor* Westw., see the latter species. It bears also a great resemblance to *H. marginalis* Schlett., but is easily distinguished by the neuration and by the reflexed posterior margin of head in latter.

14. CRASSICAUDA Morley.

Stephanus crassicauda Morley (1), p. 106, ♀.

♀. Head coarsely and irregularly rugose, a central longitudinal trans-striate sulcus on occiput; posterior margin of head simple; temples finely punctate, prominent and glabrous above. Second and third flagellar joints of equal length and a little longer than first. Neck short, with three strong trans-carinæ; semiannular finely trans-striate, its posterior margin narrowly smooth; mesonotum coarsely punctate; scutellum smooth, with diffuse and rather fine puncturation. Meso- and meta-pleuræ alutaceous and dull, with a few punctures, latter separated from the median segment by a sulcus. Median segment scabriculous and centrally trans-striate. Petiole trans-striate, as long as rest of abdomen; apical segments discally emarginate. Terebra slightly longer than body, sheaths unusually stout and abruptly pointed, ferruginous, with a white band before the equally broad black apex. Hind legs with coxæ elongately pilose and sparsely trans-

carinate; femora smooth and pilose, with two very long and slender teeth; tibiæ constricted in basal third and again beyond middle.

Black; a white spot on cheeks; base of flagellum ferruginous; anterior legs, hind trochanters, constricted part of tibiæ, their apex, and the hind tarsi fulvous. Wings slightly infumate, external submedian cell darker, with a pale space beyond it.

Length 26 mm.; abdomen 16 mm.; petiole 8 mm.; terebra 27 mm.

The type, in the British Museum, bears a label "Australia, 1868" only.

The cotype, in same collection, is much smaller: body 20½ mm.; abdomen 13 mm.; petiole 6 mm.; terebra 19 mm. It was taken by F. P. Dodd, 5. iii. 08, at Townsville, Queensland.

15. TARSATUS Sichel.

Megischus tarsatus Sichel (2), p. 476, pl. 10, figs. 4 et 5, ♀.
Stephanus tarsatus Schlett., p. 107, ♀ ♂.

♀. Face below antennæ obliquely striate, the striæ descending from the sides to the central line; frons transrugose; vertex coarsely transrugose; occiput with a small central part transrugose, laterally irregularly reticulate. Neck elongate, transrugose; mesonotum apically smooth, centrally diffusely punctate with a few transrugosities; scutellum smooth, with deep and coarse but diffuse punctures; median segment scrobiculate reticulate. Abdomen slightly pubescent; petiole trans-striate. Terebra as long as body, white-banded before apex. Hind coxæ trans-striate; hind femora bidentate.

Black; head except apex of mandibles, scape, sometimes also basal flagellar joint, apex of pronotum, anterior femora, tibiæ mostly, and the tarsi red; antennæ fusco-piceous. Wings infumate, nervures fuscous or rufo-fuscous.

Length 38 mm. Expanse of fore wings 18 mm.

♂. Similar to ♀; head more strongly transrugose, occiput centrally more broadly trans-striate, metathorax more rugose, petiole and coxæ more finely sculptured, serrations on hind femora finer; abdomen fusco-piceous.

Length 24 mm. Expanse of fore wings 11 mm.

Habitat: Manila, Philippines; Bachian, Molucca Islands.

Schletterer (*l. c.*) tentatively synonymizes this with *M. tarsalis* Smith, from Bachian, remarking that it corresponds in the infumation of the wings, length and colour of terebra, colour of body, sculpture of petiole, and, to some extent also, in sculpture of head and thorax. It appears, however, to differ in having the head coarsely sculptured, black, not red as in *tarsatus*, the thorax coarsely punctate, and is only 9 lines (18 mm.) long. I consider it a distinct species, but the description is insufficient for certain determination.

16. *TEXANUS* Cress.

Megischus texanus Cress. (2), p. 190, ♀.

♀. Frons coarsely reticulate; vertex with two trans-carinae; occiput finely transrugose. Pronotum smooth; mesonotum coarsely rugose; metanotum (median segment) centrally and apically rugose. Petiole as long as rest of abdomen. Terebra as long as body, basal half of sheaths ferruginous, apical half black, white-banded before apex. Legs shining; hind femora bidentate; hind tibiae constricted above middle. Wings "too much damaged to be described."

Opaque, dull ferruginous; head yellowish, mandibles apically black; antennae apically darker; hind tibiae with constricted part yellow; frontal tubercles apically and abdominal segments from second apically fuscous.

Length 10 mm.

Habitat: Comal Co., Texas. 1 ♀.

In the absence of details as to the wings, I place this species in the subgenus *Stephanus*. It appears to be characterized by the sculpture of the head and by the colour, especially of the terebral sheaths.

17. *EUROPÆUS* Sichel.

Bothriocerus europæus Sichel (1), 1860, p. 759, ♀. *Megischus eur.* Sichel (2), p. 484, ♀. *Stephanus eur.* André, p. 486; Schlett., p. 95, ♀.

♀. Head granulate, frons near tubercles irregularly rugulose, occiput above regularly transrugose. Pronotum irregularly trans-striate, its extreme posterior margin smooth; mesonotum coriaceo-granulate, obscurely trans-striate, with central longitudinal row of punctures; median segment coriaceo-granulate and apically obscurely trans-striate. Petiole trans-striate, basally smooth, remainder of abdomen smooth and shining. Terebra longer than body, its sheaths apically white-banded. Legs smooth.

Black; mandibles and antennae basally rufo-testaceous; tegulae, petiole, base of second segment, trochanters, anterior tibiae, hind tibiae basally, and all tarsi red or rufescent. Wings subhyaline, stigma black, nervures fuscous.

Length 13 mm.; terebra 17 mm.

The unique specimen was taken in Sicily in Sept. 1859.

In the absence of details as to the relative lengths of the antennal joints and of the hind legs, it is impossible to place this species with certainty. It appears to be very near *anomaliipes* Est., from which it differs chiefly in the basally smooth petiole. The granulate sculpture is probably the same as that otherwise described as coarsely punctate. A similar case occurs where the same sculpture is described by one author as "coarsely striate" and by another as "carinate."

18. *TORTUS* Morley.*Stephanus tortus* Morley (1), p. 84, ♀.

♀. Frons reticulately, but not transversely rugose; the three anterior tubercles prominent, acute; occiput laterally coarsely reticulate, centrally transaciculate; posterior margin of head simple. Second flagellar joint rather longer than first, third only as long as second. Neck transrugose, semiannular glabrous. Mesonotum smooth, central row of punctures distinct, lateral rows subobsolete. Mesopleuræ smooth above, rugulose beneath; metapleuræ rugulose, separated from the median segment by a strong, glabrous sulcus. Median segment deeply and rather diffusely punctate, apically transaciculate. Petiole shorter than rest of abdomen, finely trans-striate throughout, all remaining segments smooth shining. Terebra about one-third longer than body, sheaths white-banded before apex. Hind legs with coxæ discally glabrous and finely granulate, below and inside obsoletely trans-striate; femora bidentate, shining smooth, sparsely punctate; tibiæ compressed in basal third, centrally excised and apically inflated.

Black; mandibles and a spot near their base red; petiole dark red, rest of abdomen piceous; anterior legs, except basally, red; hind tibiæ piceous, centrally red. Wings slightly infumate.

Length 26 mm.; abdomen 19 mm.; petiole 9 mm.; terebra 34 mm.

Habitat: Nedunkernie, N.P. India. Taken by O. S. Wickwar.

Type in coll. Claude Morley, Monk Soham, Suffolk.

The proportions of the flagellar joints, granulate hind coxæ, and structure of hind tibiæ distinguish this species from all others with white-banded terebral sheaths.

19. *ANOMALIPES* Fst.

Stephanus anomalipes Först., p. 228, ♀; Schlett., p. 93; André, p. 487, ♀.

♀. Frons rather coarsely and irregularly rugose; occiput diffusely and arcuately rugose behind the tubercles, posteriorly transversely, laterally irregularly rugose. Temples with a few shallow and confluent punctures in front; posterior margin of head simple. Second flagellar joint twice as long as first; third longer than second, but shorter than first and second together. Neck rather coarsely and transversely, semiannular more finely and less regularly rugose. Mesonotum rather coarsely, posteriorly more densely transrugose punctate, with a distinct central longitudinal line of punctures and two lateral impressions. Scutellum centrally shining smooth, laterally finely and densely punctate. Mesopleuræ rather coarsely coriaceous throughout; metapleuræ coarsely and irregularly rugose, separated by a distinct and slightly alutaceous sulcus from the median segment, which is coarsely and densely rugose-punctate. Petiole rather slender, finely coriaceous, basally indistinctly transrugose,

shorter than the remaining segments together, also shorter than the hind coxæ, trochanters and femora together; rest of abdomen basally rugose, thence dull to apex. Terebra longer than body, its sheaths white-banded before apex. Hind legs with coxæ plainly trans-striate above, laterally coriaceous and shining; femora internally shining, externally and above almost shining, slightly rugose behind, bidentate; tibiæ longer than femora, compressed in basal third.

Black; cheeks pale marked, mandibles and antennæ basally ferruginous, temples tending to brownish; abdomen brown, petiole rufescent; legs more or less rufescent. Wings slightly infumate throughout.

Length 17 mm.; terebra 21 mm.

Habitat: Hungary. Förster's type is in the State Museum at Budapest.

Distinguished from *serrator* Fab. by the three-jointed hind tarsi, white-banded terebral sheaths, etc. From *S. sickmanni* Schlett. it may be known by the rugose, not punctate metapleuræ, coriaceous petiole, and longer terebra.

20. BICOLOR Westw.

Stephanus bicolor Westw. (2), p. 535; (3), p. 276; Schlett., p. 154, ♀.

♀. Frons arcuately to irregularly rugose; occiput anteriorly arcuately, posteriorly rather coarsely transversely, laterally more irregularly rugose. Temples very diffusely punctate. Posterior margin of head simple. Cheeks a little longer than scape. Basal flagellar joints normal. Neck rather coarsely transrugose; semiannular finely transrugose and sparsely punctate. Mesonotum rather coarsely punctato-rugose. Scutellum smooth, with a few punctures on outer margin only. Mesopleuræ above alutaceo-rugose, below somewhat densely punctate; metapleuræ irregularly rugose, separated from the median segment by a nearly smooth sulcus. Median segment rather densely punctate centrally, laterally more diffusely, oblique to transverse rugose round insertion of petiole, crenulate marginal sulci distinct. Petiole basally irregularly, otherwise transversely striate, shorter than remainder of abdomen, which is entirely dull. Terebra evidently longer than body, sheaths white-banded before apex. Hind legs with the coxæ laterally coarsely and irregularly, above indistinctly, apically decidedly transrugose; femora slightly shining, bidentate; tibiæ compressed to middle.

Badius; head and thorax ferruginous, remainder of body red-brown; petiole more or less nigrescent. Wings slightly infumate.

Length 15–22 mm. Habitat: Kentucky, Georgia, U.S.A.

This species may be known from *S. sickmanni* Schlett., which it much resembles, by the longer terebra, sculpture of meso- and meta-pleuræ and of petiole, which is rugose throughout, not centrally smooth. The colour is also distinctive, being a decided red-brown or chestnut. *S. sickmanni* being deep black.

21. *NIGRICANS* (Sichel), Schlett.

Megischus tarsatus var. *nigricans* Sichel (2), v, p. 476, ♀.
Stephanus nigricans Schlett., p. 109, ♀.

♀. Face below antennæ irregularly rugose reticulate, frons transrugose; occiput centrally broadly transrugulose, laterally coarsely and deeply reticulate. Neck elongate, transrugose; mesonotum diffusely punctate; scutellum centrally smooth, laterally diffusely punctate; median segment coarsely reticulate. Petiole trans-striate; terebra longer than body, broadly white-banded before apex. Hind coxæ trans-striate; hind femora bidentate.

Black; tegulæ apically rufescent; anterior legs red, front femora externally black. Wings infumate, nervures fuscous.

Length 33 mm.; fore wings 12 mm.; terebra 35 mm.

Habitat: Ceylon. One ♀ in coll. Sichel.

Sichel considers this a variety of *S. tarsatus* Sichel, which it strongly resembles, but the different sculpture of face and occiput, black head, and longer terebra entitle it to specific rank.

22. *NIGER* Smith.

Megischus niger Smith (4), i. p. 44; Cam. (1), p. 420, pl. xviii. fig. 19, ♀. *Stephanus niger* Schlett., p. 135, ♀.

♀. Frons coarsely and irregularly rugose; occiput anteriorly arcuate-rugose, posteriorly transversely, laterally irregularly rugose; cheeks scarcely as long as scape. Posterior margin of head strongly bordered. Second flagellar joint two-and-a-half times as long as first, third as long as first and second together. Neck with a distinct transverse impression, behind which it is finely and sparsely rugose; semiannular polished, with very fine and diffuse punctures. Mesonotum finely trans-striate and diffusely punctate, the usual central row of punctures and the two lateral impressions obsolete. Scutellum smooth, with a few marginal punctures. Mesopleuræ smooth, with diffuse coarser and finer punctures; metapleuræ finely and irregularly rugose, separated by a deep and smooth sulcus from the median segment, which is diffusely and irregularly punctate, with distinct marginal furrows. Petiole very distinctly trans-striate, much shorter than remainder of abdomen, but nearly as long as the hind coxæ, trochanters, and femora together. Terebra scarcely longer than body, its sheaths white-banded before apex. Hind coxæ trans-striate between stronger rugosities; hind femora dull, bidentate; tibiæ compressed not quite to middle.

Black; cheeks pale marked and the anterior legs with a tendency to brown. Wings hyaline.

Length 23-25 mm.

Habitat: Panama, Guatemala. Type in British Museum.

This species is distinguished from the similar *S. marginalis* Schlett. by the bordered but not reflexed posterior margin of

head, shorter petiole, and by the sculpture of prothorax and median segment.

S. sickmanni Schlett. has the posterior margin of head simple, neck of prothorax short, semiannular rugose-punctate, and mesopleuræ punctate.

23. FROGGATTII Cam.

Megischus froggattii Cameron (9), p. 357, ♀ ♂. *Stephanus froggattii* Cam. (11), p. 98; Elliott (2), p. 28, ♀ ♂. *Stephanus rubripes* Morley (1), p. 107, ♀ ♂.

♀ ♂. Frons strongly transrugose; vertex arcuately and occiput transversely rugose; cheeks shorter than scape; posterior margin of head bordered. Second and third flagellar joints of equal length and rather longer than first. Neck short, centrally longitudinally impressed, with one strong basal carina; semiannular widely aciculate, extreme base smooth. Mesonotum coarsely punctate, with central smooth space; mesosternum flat and polished. Scutellum smooth, basally bounded by a crenulate furrow. Propleuræ diffusely punctate; mesopleuræ smooth above, with three or four irregular rows of punctures below; metapleuræ closely rugulose throughout, separated by a smooth sulcus and a carina from the median segment, which is rather densely but superficially punctate. Petiole transaciculate, a little shorter than the remaining segments together; base of second segment feebly rugose, rest smooth and shining. Terebra as long as, or very slightly longer than body, sheaths black, broadly white-banded before apex. Hind legs with coxæ slender and strongly trans-striate; femora smooth and shining, bidentate; tibiæ longer than femora, constricted in basal third; tarsi five-jointed in ♂, three-jointed in ♀; all tibiæ and the hind femora elongately pilose.

Black; mouth-parts and genal orbits testaceous; anterior legs except coxæ and trochanters bright red; hind femora and tarsi, except apically, and apical two-thirds of hind tibiæ red. Wings brown, centrally darker, stigma and nervures black.

Length, ♀, 33 mm.; abdomen 22 mm.; petiole 10 mm.; terebra 35 mm.; ♂, 16 mm.; abdomen 11 mm.; petiole $4\frac{1}{2}$ mm. Another ♂, 12, 8, $3\frac{1}{2}$ mm. Taken by W. W. Froggatt, Solomon Islands, July-Aug. 1909.

♀ ♂, length 22 mm.; abdomen 13 mm.; petiole 6 mm.; terebra in ♀, $21\frac{1}{2}$ mm. Taken by C. M. Woodford, Solomon Islands, 1887.

There are also in the British Museum 5 ♀ ♀, 2 ♂ ♂, their dimensions lying between those given above.

Cameron states that the abdominal petiole is a little longer than the rest of abdomen, but actual measurement shows it to be shorter. He also gives the colour of the wings as fusco-violaceous; it is now brown; possibly faded.

This species much resembles *S. rufo-femoratus* Szépl., also from the same locality, but differs in the relative length of the basal joints of the antennæ, sculpture and length of petiole, and the strongly trans-striate hind coxæ.

Cameron considers it to be near his *Megischus violaceipennis* from New Britain, in which the sculpture of the body tends to be reticulate.

Mr. C. T. Brues found in the Museum of Harvard College 4 ♀ ♀, 2 ♂ ♂, from Auki, Tulagi, Fulakora, and Malaili. The larger females, 26–31 mm., have the femoral teeth more strongly developed than in the smaller individuals of 21–23 mm. The males measure from 20–21 mm.

24. CEYLONICUS Cam.

Stephanus ceylonicus Cam. (4), p. 102; Morley (1), p. 34, ♀.

♀. Frons irregularly transrugose, arcuately above; vertex and occiput arcuate rugose; posterior margin of head finely bordered. Second flagellar joint twice as long as first, third little longer than second. Neck closely trans-striate, with central apical row of punctures, semiannular transcarinate, laterally diffusely punctate, a narrow posterior margin smooth. Mesonotum diffusely punctate; scutellum only laterally punctate. Propleuræ closely obliquely striate; mesopleuræ almost impunctate; metapleuræ smooth above, coarsely and almost reticulately transrugose beneath. Median segment diffusely punctate, apically transreticulate. Petiole closely trans-striate, as long as rest of abdomen, which is smooth. Terebra slightly longer than body, sheaths white-banded before apex. Hind coxæ transrugose, hind femora bidentate.

Black; a pale spot below eyes; anterior legs and base of hind tibiæ rufo-testaceous. Wings hyaline with steely iridescence; stigma and nervures black.

Length 28 mm.

Habitat: Trincomali, Ceylon (Yerbury). Kandy and Galle, Ceylon (Morley.)

25. BORNEENSIS Sauss.

Megischus borneensis Sauss., p. 202, ♀ ♂.

“♀ ♂. *M. ruficeps* simillimus, ejusdem pictura; capite tamen toto rufo; tantum mandibulæ apice nigris. Antennæ nigrae, primo articulo rufo. Caput sicut in specie, laudata inculptum sed superne totum et occipite transverse arcuato-strigatum. Facies rugoso-punctata, nonnunquam tamen utrinque strigis nonnullis, valde obliquæ conferens, vel toto transverse obsoleta arcuata-strigata. Mesonotum politum, cribrosum, antica utrinque punctis confluentibus crasse strigatus; scutello polito. Coxæ postice transverse elevato-rugatæ ac striatæ. Femora postica, denti usque 3 armata (1 ante medium, 2 prope

apicem). Alæ fusco nebulosæ, in medio vitta transversa vel maculis fusca.

"Variet. *a*. Pedibus fusco-rufescentibus.

b. In individuis minoribus et in maribus sculptura incomplete explicata.

"♀. Long. 20-31; thoracis 4·8-7·5; petioli 6-10; oviposit. 32·5-40 mm.

"♂. Long. 25; thoracis 4·6; petioli 6·5; alæ 12 mm."

Habitat: Borneo.

Very similar to *furcatus* Lep. & Serv. and to *ruficeps* Sauss., but distinguished from both by the tridentate hind femora and the central dark mark or band in fore wing; from the latter also by the sculpture of the frons, and the longer terebra.

26. *FURCATUS* Lep. & Serv.

Stephanus furcatus Lep. & Serv., p. 1835, ♀; Schlett., p. 130, ♀ ♂. *Stephanus brasiliensis* Westw. (1), p. 413, pl. 66, fig. 3; Westw. (3), p. 227, ♂. *Megischus annulator* Brull., p. 539, pl. 40, fig. 5; Sichel (2), p. 482, ♀; Cam. (1), p. 419, pl. 18, fig. 7, ♂. *Stephanus annulator* Westw. (3), p. 228, ♀. *Bothriocerus americanus* Sichel (1), p. 761, ♀. *Megischus americanus* Sichel (2), p. 480, ♀. *Megischus brasiliensis* Sichel (2), p. 483, ♂.

♀ ♂. Frons very coarsely irregularly to arcuately rugose; the three anterior tubercles very large; occiput coarsely rugose, arcuately in front, transversely behind, laterally irregularly. Temples apically feebly rugose; cheeks as long as scape. Posterior margin of head strongly bordered. Second flagellar joint fully twice as long as first, third longer than second but shorter than first and second together. Neck coarsely transrugulose, semiannular smooth, slightly transrugose in front and with a few lateral punctures. Mesonotum with a central row of very coarse punctures, a smooth, diffusely punctured space on each side bounded by divergent impressions, beyond which it is laterally transrugose, with a more or less extensive smooth space. Scutellum polished and diffusely punctate. Mesopleuræ finely coriaceous above, obliquely rugose in front, smooth and diffusely punctate beneath; metapleuræ with a few coarse rugosities in which are some large punctures, separated from the median segment by a shallow but distinct and almost smooth sulcus. Median segment punctate, more densely and partly confluent centrally and laterally, apically transrugose. Petiole trans-striate, shorter than rest of abdomen, also shorter than the hind coxæ, trochanters and femora together; second segment shining smooth, basally rugose, remaining segments rather dull. Terebra longer than body, white-banded before apex. Hind legs with coxæ finely transrugose between coarse, scale-like rugosities; femora shining smooth, bidentate; tibiæ compressed not quite to middle; tarsi five-jointed in ♂, three-jointed in ♀.

Black to dark brown, cheeks sometimes pale marked. Wings infumate.

Length 25–39 mm.; terebra in ♀, 38–52 mm.

Habitat: Brazil; Guatemala.

The sculpture of the median segment is variable. In some specimens in the British Museum the punctures are more diffuse, only apically and laterally confluent, forming transverse rugosities; in others the punctures are more confluent, the greater part of the segment being coarsely transrugose. The punctures appear to be more distinct in the ♂♂ than in the ♀♀.

S. annulator Brull., ♀♂; the types are in the British Museum, and certainly belong to the present species. ♀: length 25 mm.; terebra 27 mm.; abdomen, anterior legs, and hind tibiæ rufescent. ♂: length 23 mm.; the front legs and hind tibiæ red.

S. brasiliensis Westw., ♀. Type in British Museum. This is a very small specimen, only 17 mm. long, terebra 20 mm., with abdomen and all tarsi rufescent. I cannot find any specific difference from *furcatus* Lep. & Serv.

This species is said to be the least rare of the family. It can be distinguished from *S. sickmanni* Schlett. by the raised posterior margin of the head, sculpture of thorax, and longer terebra. It also superficially resembles *Hemistephanus marginalis* Schlett., but may be at once distinguished by the neururation of the wings.

27. RUFICEPS SAUSS.

Megischus ruficeps Sauss., p. 201, ♀. *Stephanus saussurei* Schulz (2), p. 322, ♀.

“Ba Chieu, prov. Saigon, 1886; Cambodia, 1886.

“♀. Validus, cinereo-hirtus, *M. furcati* Brull. statura et illi simillime. Caput rufus, ore nigrò, palpis fuscis. Antennæ nigræ, basi superne rufæ, primo articulo rufo. Caput anterius rugato-punctatum, haud arcuato strigatum, supra crassissime areolato-punctatum, in vertice rugis transversis elevatis 1–4 instructum; occipitis vitta longitudinali transversa striata. Frontis depressis subrhomboidalis, rugosa, per tuberculos rugiformes 5 nigros circumscripta, marginibus infero-lateralibus vittam transversa strigatum notatis. Pronoti collum crasse transverse plicato strigatum. Mesonotum crasse cribro-punctatum, haud strigatum. Tegulæ rufidæ. Mesopleuræ dense punctatæ. Scutellum et postscutellum rugulosa, basi et apice polita. Metanotum crassissime foveolato punctatum. Abdominis petiolus ut solitum confertim transverse striolatus. Abdomine de reliquo levigatum, sericans, basi petiolarum rugulosa. Terebra nigra, annulo ante apicem longiusculo albidò. Pedes nigri, politi, partibus rufo-testaceis. Coxæ posticæ plus minus crasse subsquamoso rugosæ, ac punctatæ, superne apice transversæ strigatæ. Femora postica subtus crenata, dentibus-que 2 armata. Ungues rufæ. Alæ nebulosæ, venis nigris.

"Long. 19-27; thorax 4.5-6; petioli 6.5-9.5; alæ 10.5-16.5; oviposit. 26.5-34 mm."

M. de Saussure tentatively suggests as males for this species two very small insects, taken in Siam. They differ in having the head entirely red, the occiput almost striate, as in *S. borneensis* Sauss., the sculpture of the body less pronounced, and the pronotum scarcely striate in one specimen. Length 10 mm.

This species appears to closely resemble *S. furcatus* Lep. & Serv., but the face is rugose-punctate, not arcuate rugose; the mesonotum, median segment, and mesopleuræ densely punctate, and the head red. It also resembles *S. coronator* Fab., but differs in the red head and the sculpture of head and mesopleuræ.

Schulz (*l. c.*) alters the name of this species to *saussurei*, on the ground of *ruficeps* being preoccupied by Cameron's Central American insect. As the latter falls into the subgenus *Hemistephanus*, I reinstate the original name.

28. CORONATOR Fab.

Pimpia coronator Fab. (2), p. 118, ♀. *Stephanus coronator* Boisd., p. 656, pl. 12, fig. 7, ♀; Schlett., p. 114, ♀ ♂; Enderl. (4), p. 306, ♀ ♂. *Megischus cor.* Brull., p. 538, ♀; Sichel (2), p. 477, ♀ ♂. *Megischus insularis* Smith (1), p. 120, ♀ ♂. *Megischus viduus* Smith (2), p. 138, ♂. *Megischus longicaudatus* Costa, Ach. (2), p. 271, ♀ ♂; (1) p. 81, ♀ ♂, pl. iv. figs. 1 a ♂, 1 b ♀.

♀. Face coarsely arcuate rugose; occiput immediately behind tubercles arcuately, behind this centrally transversely, laterally obliquely rugose. Posterior margin of head sharply bordered. Cheeks distinctly longer than scape. Second flagellar joint twice as long as first, third a little longer than second. Neck very coarsely transrugose; semiannular polished, with a few punctures in front. Mesonotum coarsely, densely, and posteriorly partly confluent punctate, anteriorly more diffusely, with a distinct central longitudinal row of punctures and indistinct lateral impressions. Scutellum centrally smooth, lateral lobes diffusely punctate. Mesopleuræ almost smooth and shining above, rugose-punctate beneath; metapleuræ coarsely and densely punctate, separated by a slightly rugose sulcus from the coarsely cribrate punctate median segment. Petiole basally coarsely, apically more finely transrugose, little shorter than remainder of abdomen, which is basally rugose, otherwise feebly shining. Terebra rather longer than body, sheaths white-banded before apex. Hind legs with coxæ coarsely transrugose behind; femora polished smooth and posteriorly extremely finely punctate, bidentate; tibiæ much longer than femora, compressed in basal third; tarsi three-jointed.

♂. Similar to ♀ but more slender; petiole is to rest of abdomen as 5:6; hind tarsi 5-jointed.

Black; head, mandibles except apices and the scape ferruginous; anterior legs chestnut-brown. Wings infumate, with darker spot in middle.

Length 20-40 mm.; males average about 5 mm. less than females.

Habitat: East India; Sarawak; Java; Bachian; Ceram; Amboina; Kaissa; New Guinea; Australia; Sumatra. Dr. Dohrn.

M. insularis Smith. Types in British Museum. From Sarawak. Rather small, but typical specimens of *S. coronator* Fab.

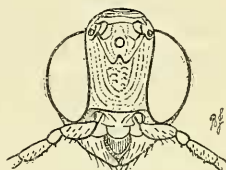
Length ♂, 19 mm.; ♀, 20 mm.; terebra 25 mm.

Text-fig. 2.



Stephanus coronator.

Text-fig. 3.



Stephanus coronator.

This species greatly resembles *S. ducalis* Westw., from which it may be distinguished by the smooth semiannular and by the sculpture of mesonotum, mesopleuræ, and median segment.

From *S. hæmatipoda* Montrz. it can be known by its red head with less prominent posterior margin, and by the sculpture of head, median segment, and hind coxæ; from *S. sulcifrons* Schlett. it may at once be separated by the absence of the sulcus on vertex and by the white-banded terebral sheaths, which latter character will also distinguish it from the African *S. pachylomerus* Schlett.

29. *DUCALIS* Westw.

Megischus ducalis Westw. (4), p. 239, ♀. *Stephanus ducalis* Schlett., p. 112, ♀. *Stephanus lucidus* Szépl., p. 532, ♂.

♀. Frons coarsely transrugose; vertex coarsely arcuate rugose; occiput centrally distinctly impressed, arcuate rugose in front, becoming transverse towards posterior margin of head, which is sharply bordered; cheeks shorter than scape; flagellar joints normal. Neck coarsely transrugose, semiannular less coarsely, with shining smooth posterior margin. Mesonotum centrally smooth, diffusely punctate in front, with a rather indistinct central longitudinal row of punctures and two shallow lateral impressions, laterally and posteriorly coarsely rugose-punctate. Mesopleuræ smooth above, rugose-punctate beneath; metapleuræ coarsely rugose-punctate, separated by a deep transrugose sulcus from the cribrate punctate median segment. Petiole basally irregularly, apically finely and transversely rugose, shorter than rest of abdomen; 2nd segment basally coarsely rugose, its apex and the last segment shining, remaining segments dull. Terebra longer than body, sheaths black, white-banded before the apex. Legs sparsely pubescent; hind legs with coxæ coarsely transrugose, femora smooth and shining in front, finely punctate behind, bidentate; tibiæ longer than femora, compressed not quite to middle; tarsi three-jointed.

Black; head, scape, and base of mandibles ferruginous. Wings infusate, centrally darker.

Length 20–36 mm.; terebra 25–41 mm.

Westwood's type is in the British Museum.

♂. Differs from the ♀ chiefly in the occiput being more obliquely rugose, petiole only basally rugose, 2nd segment basally rugose as in ♀, but remainder of abdomen smooth and shining; hind tarsi five-jointed; anterior femora partly, their tibiæ and all the tarsi often dark red.

Length 20–23 mm. Szépligetti's type (*S. lucidus*, ♂) is in the Hungarian National Museum at Budapest.

Habitat: widely distributed in the Indo-Australian Region; East India, Java, Sumatra, Borneo, Pulu-Penang, Celebes, Sumba, Key Island, Bachian, and New Guinea.

Schulz (2), p. 19, mentions a very large ♀, 36.5 mm., in which the posterior angles of median segment, metapleuræ, petiole, and hind coxæ are all of a metallic steel-blue or violet—colours not previously observed in this family.

This species differs from *S. coronator* Fab. chiefly in the head being impressed behind the vertex; the rugose semiannular, and the coarse sculpture of mesonotum, mesopleuræ, and median segment further distinguish it. From *S. hematipoda* Montrz. it may be known by the impressed head, the arcuately rugose vertex, less prominent posterior border of head, and by the sculpture of the median segment. The absence of the sulcus on vertex and the white-banded terebral sheaths will suffice to separate this species from *S. sulcifrons* Schlett.

30. LANCEOLATUS Kieff.

Stephanus lanceolatus Kieffer (3), p. 277, ♀.

♀. Head from antennæ to the sharply bordered posterior margin coarsely arcuate rugose; anterior frontal tubercle scarcely larger than the lateral ones, posterior pair smaller, the space between tubercles centrally smooth. Flagellar joints normal. Pronotum elongate, with apical transcarina, posteriorly trans-striate, laterally smooth and shining. Mesonotum and median segment smooth, coarsely and diffusely punctate. Scutellum smooth and shining, coarsely punctate on margins of lobes. Propleuræ nearly smooth; meso- and meta-pleuræ coarsely and diffusely punctate, former anteriorly subrugose. Petiole coarsely and closely trans-striate, as long as rest of abdomen; second segment smooth and shining, four times as long as broad; remainder transverse, shagreened, and shining. Terebra about half as long again as body, sheaths white-banded before apex. Middle and hind coxæ smooth, with whitish pubescence; hind femora smooth, bidentate; tibiæ compressed to middle. Stigma very long and pointed.

Black; head except apices of mandibles, two basal antennal joints, front legs except basal third, and hind tarsi red; intermediate legs black-brown. Wings infumate, distally darker, external median and submedian cells and thence to posterior margin brown; stigma and nervures black.

Length 24 mm.; terebra 37 mm.

Habitat: Obidos on the Amazon (P. Kihler).

Distinguished from *S. maculipennis* Westw., especially by the coarsely trans-striate petiole without lateral tubercles; from *S. ruficeps* Sauss. it may be known by the arcuate rugose head and darker wings.

31. HÆMATIPODA Montrz.

Stephanus hæmatipoda Montrz., p. 114; Schlett., p. 116, ♀.

♀. Frons coarsely and irregularly rugose, somewhat obliquely near the eyes; occiput arcuate rugose behind the tubercles, posteriorly centrally transrugose, laterally more irregularly. Temples diffusely and finely punctate. Posterior margin of head with slightly reflexed border. Neck very coarsely trans-striate. semiannular smooth, laterally coarsely punctato-rugose. Mesonotum centrally diffusely punctate, with a longitudinal row of conspicuous punctures and indistinct lateral impressions, remainder coarsely and subtransversely rugose-punctate. Scutellum polished smooth with a few marginal punctures. Mesopleuræ smooth above, slightly rugose in front and behind, coarsely rugose-punctate beneath, separated by a deep rugose sulcus from the median segment, which is very coarsely cribrate punctate, laterally and apically indistinctly transrugose. Petiole coarsely, anteriorly irregularly, otherwise distinctly transversely rugose.

a little shorter than remainder of abdomen and as long as hind coxæ, trochanters, and femora together; second segment basally rugose, apically smooth, the remainder dull. Terebra white-banded before apex. Hind legs with coxæ very coarsely transrugose; femora smooth, bidentate; tibiæ much longer than femora, compressed not quite to middle.

Black; cheeks marked with pale red; anterior legs ferruginous, their coxæ black and tarsi pitch-brown; apical inflated part of hind tibiæ ferruginous. Wings strongly infumate, centrally darker.

Length 30 mm.

Habitat: Woodlark Island, New Guinea. Bachian, Jobi Island.

Two specimens of this species are in the Royal Nat. Hist. Museum in Dresden; in both the antennæ are wanting and terebra broken; Montrouzier states the latter is white-banded.

Schletterer considers this species very similar to *S. coronator* Fab. and *S. ducalis* Westw., in both of which the head is red and the sculpture very different.

32. ACUTUS Lep. & Serv.

Megischus acutus Lep. & Serv., p. 489; Brull., p. 540, ♀. *Stephanus acutus* Schlett., p. 137, ♀.

♀. Frons moderately coarsely arcuately rugose; occiput very coarsely arcuate rugose near tubercles, otherwise irregularly to transrugose. Temples smooth and shining. Posterior margin of head elongate, reflexed collar-like. Cheeks shorter than scape. Basal flagellar joints normal. Neck coarsely transrugose, less distinctly basally; semiannular smooth, with coarse but diffuse punctures. Mesonotum shining, laterally densely, partly confluent punctate, a median longitudinal row of punctures, on each side of which is a smooth space, followed by a row of broad punctures. Scutellum polished, with a few marginal punctures. Mesopleuræ shining, diffusely punctate; metapleuræ densely pubescent, somewhat rugose, separated by an almost smooth sulcus from the median segment, which is cribrate punctate and apically transrugose. Petiole finely trans-striolate, about as long as remainder of abdomen, which is shining, with a few dull spots, due to microscopic sculpture. Terebra a little longer than body, white-banded before apex. Hind legs with coxæ trans-striolate between coarse rugosities; femora smooth, bidentate; tibiæ compressed not quite to middle.

Black; cheeks and mandibles pale marked; anterior legs have a tendency to become brownish. Wings slightly infusate.

Length 21–30 mm.

Habitat: Brazil; Colombia; Kansas, U.S.A.

This species resembles *S. niger* Smith, but has the posterior margin of head reflexed, face arcuate rugose, mesonotum punctate, not rugose, and longer petiole.

33. *VILLOSUS* Kieff.

Stephanus villosus Kieffer (1), p. 4, ♀ ♂.

♀. Face and frons irregularly and coarsely rugose, space between the tubercles strongly impressed; vertex with three arcuate transcarinae; occiput coarsely and densely longitudinally rugose; posterior margin of head produced into a broad horizontal translucent collar. Second flagellar joint two and a half times as long as first, third more than twice as long as first and second together and about two and a half times as long as second. Prothorax coarsely and rather diffusely transrugose, basally more strongly and more diffusely. Mesonotum smooth, with median line of punctures and laterally transrugose; scutellum with two anteriorly convergent irregular rows of punctures and slightly rugose, anterior lobes diffusely punctate. Mesopleuræ white pubescent, the impressed part transrugose. Metapleuræ and median segment with large and partly confluent punctures, former white pubescent. Petiole finely trans-striate, about as long as rest of abdomen, which is basally striate. Terebra as long as body, sheaths black, white-banded before apex. Hind legs with coxæ finely trans-striate, as long as the bidentate femora; the tibiæ longer than femora, constricted in basal third and compressed beyond middle; tarsi three-jointed, with long grey pubescence beneath.

Shining black; head except apices of mandibles, scape, and second joint of hind trochanters red; anterior legs black-brown. Thorax and legs with long, sparse, whitish pilosity, the hairs on meso- and meta-pleuræ inserted on granular prominences. Wings hyaline.

Length 16 mm.

♂. Similar to ♀, but second flagellar joint not twice as long as first; third shorter than first and second together. Mesonotum red-brown; hind tarsi five-jointed, red, less densely pubescent beneath; genital organs testaceous.

Length 12 mm.

Habitat: Jataneý, Prov. Goyaz, Brazil. Coll. M. de Saule.

The unusual proportions of the basal flagellar joints in ♀ are very characteristic.

34. *RUFOFEMORATUS* Szépl.

Stephanus rufofemoratus Szépl., p. 532, ♂.

♂. Frons coarsely rugose, vertex transrugose, occiput coarsely rugose; posterior margin of head bordered. Flagellar joints normal. Neck rugose, semiannular smooth, diffusely punctate. Mesonotum coarsely punctate, shining; scutellum smooth and shining. Mesopleuræ closely punctate and shining. Median segment diffusely and coarsely punctate and shining. Petiole only basally rugose, remainder smooth and shining, as long as rest of abdomen. Hind legs with coxæ shining, diffusely rugose; femora smooth, bidentate; tarsi five-jointed.

Black; legs from femora red; basal half of hind tibiæ black. Wings brown, centrally darker; hind wings with indications of cubital and radial nervures.

Length 22 mm.

Habitat: Rubiana, New Georgia, Solomon Islands. Type in the Hungarian National Museum, Budapest.

Easily distinguished by the smooth petiole and red femora.

This species closely resembles *S. rubripes* Morley, from which it differs in the smooth petiole, proportions of basal flagellar joints, the sculpture of semiannular, mesopleuræ, and hind coxæ.

35. *COMMA* Morley.

Stephanus comma Morley (1), p. 105, ♂.

♂. Head semicircularly rugose in front, trans-sulcate below scrobes. Tubercles small and transverse; vertical carina prominent; occiput trans-striate; posterior margin of head truncately bordered. Antennæ very slender and elongate, 21 mm., second flagellar joint half as long again as first, third half as long again as second, shorter than first and second together. Thorax superficially but confluent punctate, the rather short prothorax transcarinate, its posterior margin smooth. Scutellum smooth, the basal sulcus crenulate. Mesopleuræ longitudinally bisulcate; metapleuræ rugulose, bisulcate above. Petiole minutely transaciculate and apically explanate, shorter than rest of abdomen, which is finely alutaceous and somewhat shining. Hind coxæ (4 mm.) rather shorter than femora (5 mm.), which are bidentate, with four small teeth before the central tooth and another beyond it. Lower nervure of external median cell in fore wing deflexed in the form of a comma at base, apically wanting; hind wing with costal nervure only, emitting a slight spurious nervure from its apex below the three frenal hooks.

Black: head except apices of mandibles, the tubercles and the occiput centrally, base of antennæ, second and fourth segments laterally basally, whole of third segment, anterior legs except coxæ, and apical third of hind femora including the teeth bright brick-red. Hind tibiæ basally black, reliquæ desunt. Wings slightly infumate hyaline; stigma and nervures black; costal and external submedian cells conspicuously darker.

Length 27 mm.; abdomen 18 mm.; petiole 8 mm.

The type was taken by Dr. W. M. Graham "in forest on trunk of tree" at Pbuasi, Ashanti, on 29 May, 1907. In coll. British Museum.

36. *PILOSUS* Elliott (4), p. 256, ♂.

♂. There are sparse white hairs on the head, longer and denser on the petiole and apex of abdomen. The pleuræ are covered with dense white pilosity, and on the legs, the hairs, though less dense, are longer and more conspicuous. Frons,

vertex, and occiput strongly arcuate rugose; one strong carina between the posterior ocelli and two behind them; ocellar space depressed. Posterior margin of head broad and slightly reflexed. Temples with a few setiferous punctures. Second flagellar joint fully twice as long as first; third a little longer than second. Prothorax transcarinate, semiannular smooth and laterally hairy. Scutellum centrally smooth, lateral lobes coarsely rugose-punctate. Metapleuræ and median segment cribrate punctate, separated by a strong carina, which is anteriorly somewhat rugose, posteriorly smooth and shining. Petiole trans-striate, basally more coarsely, shorter than rest of abdomen, which is smooth. Hind coxæ stout, coarsely transrugose; femora smooth, bidentate, the teeth long and acuminate; tibiæ as long as femora and trochanters, strongly compressed in basal third.

Black; head, scape, base, and apex of anterior femora red; frontal tubercles apically black. Wings faintly iridescent; fore wings centrally, hind wings apically infusate; stigma and nervures black-brown.

Length 22 mm.; abdomen $14\frac{1}{2}$ mm.; petiole 6 mm.

Habitat: Palaboehan, Ratoe. M. E. Walsh (*ex* Frisby), 22 Feb., 1916. Type in coll. Claude Morley.

In the coarse sculpture and conspicuous pilosity, this species much resembles *S. villosus* Kieff.

37. *rugosus* Elliott (4), p. 256, ♂.

♂. Frons arcuate rugose; vertex and occiput with strong longitudinal carinæ, occiput regularly, vertex less regularly arcuate striate; three strong carinæ behind posterior ocelli. Posterior margin of head bordered. Cheeks slightly shorter than scape, smooth. Basal flagellar joints normal. Neck transcarinate, semiannular smooth, with a few punctures. Propleuræ finely trans-striate. Mesonotum apically smooth, central row of punctures distinct, the smooth space on each side with a single puncture before and behind, laterally strongly punctate, separated from scutellum by two carinæ. Scutellum centrally smooth, laterally strongly rugose-punctate. Metapleuræ and median segment cribrate punctate, separated by a strong carina. Petiole strongly transrugose, shorter than the remaining smooth segments. Hind coxæ coarsely trans-striate; femora smooth, bidentate; tibiæ slightly longer than femora, compressed to middle.

Black; head, except apices of mandibles, and apex of thorax above red; anterior legs more or less rufescent. Wings hyaline.

Length 16 mm.; abdomen 10 mm.; petiole $4\frac{1}{2}$ mm.

Habitat: Java; Preanger Regency, near Seekoboemi. M. E. Marsh, 1918. Type and co-types in coll. Claude Morley.

This species bears a superficial resemblance to both *S. unicolor* Schlett. and *S. ducalis* Westw., but differs considerably in sculpture.

38. VIOLACEIPENNIS Cam.

Megischus violaceipennis Cameron (2), p. 225, ♀.

"Niger; pedibus rufis; coxis, trochanteribus, femoribus posticis basique tibiæ posticarum nigris; alis fusco-violaceis, nervis nigris. ♀.

Long. 24 mm.

Antennæ black, slender. Front rugosely punctured above; the sides above stoutly obliquely, the lower part transversely striated, the ocellar region irregularly reticulated, the keels above them mostly curved; above the reticulated upper portion are four long curved keels, the vertex behind them is irregularly rugosely striated; the ocellar region is distinctly depressed; the three tubercles form a triangle. The base of the pronotum is smooth and shining; behind on the sides are two stout curved keels; the rest of the pronotum is opaque and irregularly transversely striated. The base of the mesonotum is smooth and shining, the rest of it bears mostly large and deep punctures, except a space on either side of the centre; on the sides and base the punctures tend to become confluent. Scutellum somewhat triangular in shape, smooth, shining and impunctate. Median segment closely, stoutly irregularly punctured; behind, the punctures run into reticulations. Propleuræ smooth and shining; the mesopleuræ opaque, irregularly punctured, and striated; the metapleuræ rugosely punctured. The four front legs are rufous, with the coxæ darker; the hinder black, except the apical two-thirds of the tibiæ and the tarsi, which are rufous at the base, blackish towards the apex; the hind coxæ are, as usual, irregularly striated; the two teeth on the hind femora are acute; the apical one is longer and narrower than the hinder. Wings fusco-violaceous; the nervures and stigma are black. The petiole is longer than the rest of the abdomen united; it is opaque and closely striated. The ovipositor is annulated with white and is not quite as long as the body. The recurrent nervure in the fore wing is interstitial."

Habitat: New Britain (Dr. Arthur Willey). Type in Cambridge Museum.

Said by Cameron to be very like his *S. froggattii*, but, in the absence of details as to the posterior border of head and relative length of the basal antennal joints, I am unable to place it definitely in my table.

PARASTEPHANELLUS Enderl.

In the (2) Zool. Anz. xxxiii. pp. 453-475, Dr. Gunther Enderlein erects a new subgenus, *Parastephanus*, which he defines as having that part of the median nervure beyond the outer submedian cell obsolete, and the cell consequently open behind, the size of the discoidal cell and the breadth of the stigma being variable. He thus includes species from the Indo-Australian and Neotropical Regions.

- (28.) 27. Frons trans-striate; intertubercular space unusually long.
 14. *claripennis* Cam.
 (27.) 28. Frons rugose.
 (32.) 29. Frons rugose punctate.
 (31.) 30. Neck of pronotum strongly trans-striate; median segment
 punctate 15. *ruficornatus* Cam.
 (30.) 31. Neck longitudinally striate; median segment reticulate rugose.
 16. *rubripictus* Elliott.
 (29.) 32. Frons rugose but not punctate; metapleuræ smooth; median
 segment diffusely punctate 17. *malayanus* Cam.

1. MARTINI Stadlm.

Stephanus martini Stadelmann (1), p. 236, ♀ ♂.

♀. Frons transrugose, coarsely punctate below; occiput coarsely transrugose; posterior margin of head sharply bordered. Basal flagellar joints normal. Neck coarsely and obliquely rugose; semiannular coarsely punctate with polished posterior margin. Mesonotum diffusely punctate. Scutellum smooth, with a few diffuse marginal punctures. Mesopleuræ shining, apically punctate; metapleuræ densely punctate, separated by a deep and shining sulcus from the coarsely cribrate-punctate median segment. Petiole basally longitudinally, apically transversely rugose, and as long as the remaining segments together; apical segments dull. Terebra very little longer than body, sheaths entirely black. Hind coxæ transrugose; hind femora finely trans-striate and tridentate; tarsi three-jointed.

Black; head, scape, and first flagellar joint red; anterior legs nigro-fuscous; all tarsi testaceous. Wings subhyaline.

♂. Similar to ♀. Nigro-fulvous, head red, antennæ basally red, apically nigro-ferruginous; base of hind femora ferruginous; tarsi five-jointed. Length, ♀, 17–20 mm.; ♂, 15 mm.

Habitat: Dele, Sumatra. Named after the captor, Hofrat Dr. med. L. Martin. Type in Berlin Museum.

Stadelmann states that this species closely resembles *S. sulcifrons* Schlett., which has the neuration of the subgenus *Stephanus*; he states also that the neuration is complete, but his figure (*l. c.* pl. 6. fig. 4) shows the external submedian cell open behind as in *Parastephanellus*.

Other differences are said to be: the sulcus on vertex indistinct in ♀, wanting in ♂; third flagellar joint longer, petiole longer and more coarsely sculptured; hind femora trans-striate and tridentate, but smooth and bidentate in *sulcifrons*.

Easily known by the tridentate hind femora and large size.

2. ORBITALIS Brues.

Parastephanellus orbitalis C. L. Brues, p. 98, ♂.

♂. Frons and vertex centrally transrugose; cheeks longer than scape; posterior margin of head bordered but not reflexed. Basal flagellar joints normal. Pronotum transrugose, the rugosities extending obliquely to the pleuræ; a punctate area on each side before the smooth posterior margin. Mesonotum

sparsely foveate punctate, with punctate median line; scutellum smooth, with coarse lateral punctures. Mesopleuræ pubescent in front, smooth and shining behind; metapleuræ irregularly rugose. Median segment with diffuse, large, and shallow punctures, separated from the metapleuræ by a smooth sulcus and a reticulate ridge. Petiole two-thirds as long as thorax; trans-striate above, irregularly rugose laterally and below; remaining segments polished. Claspers short, basally smooth, apical half punctate and hairy, apex rounded, with dense fringe of short hairs. Hind coxæ trans-striate, with a smooth area externally near the base. Hind femora tridentate.

Black; face to just above antennæ and inner orbits narrowly pale yellowish, outer orbits more widely above white. Palpi and antennæ piceous, base of flagellum fuscous; propleuræ below rufous; front legs anteriorly brown-yellow; all knees and apices of tibiæ are whitish, all tarsi honey-yellow. Wings slightly infusate; stigma about half as wide as radial cell, petiole of discoidal cell short.

Length 7-8 mm.

Habitat: Fulkora, Solomon Islands (F. W. Mann). Type and paratype in the Museum of Comparative Zoology at Harvard College, U.S.A.

The black head and the sculpture of pronotum and median segment will distinguish this species from the only other of similar size with tridentate hind femora (*glaber* Elliott).

3. GLABER Elliott.

Parastephanellus glaber Elliott (2), p. 129, ♀.

♀. Frons arcuate rugose, vertex strongly transrugose, occiput becoming gradually smoother towards the slightly raised posterior margin, and with distinct longitudinal impression; carinæ between the posterior ocelli very inconspicuous, scarcely to be distinguished from the transverse striæ; anterior frontal tubercle very prominent. Cheeks shorter than scape; basal flagellar joints normal. Prothorax glabrous. Neck rather short; mesonotum smooth; scutellum with marginal punctures only; pro- and meso-pleuræ very finely alutaceous, metapleuræ almost smooth and median segment with scarcely any visible sculpture. The pleuræ, abdomen beneath, and the legs with erect white hairs. Petiole very finely trans-striate, slightly longer than rest of abdomen, which is smooth. Terebra longer than body, sheaths black. Hind legs with coxæ finely trans-striate, femora smooth, tridentate; tibiæ compressed to middle.

Black; head rufescent, with white line under eyes as in *P. damellicus* Westw.; a testaceous mark on frons just below the anterior tubercle, which is pale rufescent. Legs rufescent, base and apex of tibiæ paler and all metatarsi whitish.

Length 8 mm.; abdomen $4\frac{1}{2}$ mm.; petiole $2\frac{1}{2}$ mm.; terebra 11 mm.

Habitat: Singapore. "F. Sm. Coll."

The almost entire absence of visible sculpture is characteristic.

The colour of head and legs and the sculpture will easily distinguish *P. orbitalis* Brues, which is the only other species of similar size with tridentate hind femora.

4. PYGMÆUS Enderl.

Stephanus pygmæus Enderl. (1), p. 197, ♀ ♂. *Parastephanellus pygmæus* Enderl. (2), p. 472 *et seqq.*; (4), p. 289 *et seqq.*

♀ ♂. Frons extremely finely and densely punctate; all five frontal tubercles acuminate, the posterior pair smaller; vertex and occiput obsoletely transaciculate; posterior margin of head sharply bordered. Antennæ very slender, second flagellar joint scarcely one and a half times as long as first; third shorter than first and second together. Neck almost smooth, its posterior margin polished. Mesonotum rugose; scutellum polished smooth; metanotum (the small visible part of the true metanotum) longitudinally striate. Mesopleuræ smooth, pubescent, diffusely punctate in front only; metapleuræ coarsely and deeply rugose, separated by a shining smooth space and a row of punctures from the densely punctate median segment. Petiole finely rugose and shorter than the remaining segments together. Terebra about two-thirds of the length of body; spicula red-brown, sheaths entirely black. Legs covered with fine erect hairs, hind femora bidentate.

Yellow-brown; apical two-thirds of antennæ, apex of mandibles, meso- and meta-thorax, pleuræ and median segment darker, yellow-brown to black-brown. Wings hyaline, external submedian cell infumate; stigma short and broad, dark brown.

Length, ♀, 7-8 mm.; ♂, 5-7 mm.

Seven ♂ ♂ and 3 ♀ ♀ in Berlin Zoological Museum; collected by Nicholitz at Milne Bay, New Guinea.

Dark specimens of the present species greatly resemble lighter ones of *P. damellicus* Westw., also from New Guinea, but are easily known by the shorter and broader stigma, infumate spot in wing, shorter petiole, and, in ♀, shorter terebra.

5. LÆVICOLLIS Morley.

Parastephanellus levicollis Morley (1), p. 111, ♀ ♂.

♀. Head finely and evenly trans-striate; vertex coarsely transcarinate; posterior margin of head bordered; cheeks smooth and a little longer than scape. Second flagellar joint half as long again as first; third half as long again as second. Neck very short and smooth, semiannular smooth, with a few fine punctures, as is also the mesonotum. Scutellum quite smooth and separated from mesonotum by crenulated lines. Mesopleuræ and metapleuræ obsoletely shagreened, not punctate, the latter separated from metanotum by a basally obsolete carina. Median segment centrally smooth, apically rugulose, and basally with a few

large punctures. Petiole very finely transaciculate, shorter than the remaining segments, which are smooth; second segment basally somewhat elongately attenuate. Terebra longer than body, sheaths entirely black. Hind coxæ transaciculate, their femora smooth with a few setiferous punctures, bidentate; tibiæ longer than femora, constricted to middle.

Black; antennæ and palpi infusate; base of antennæ, mandibles except apices, clypeus and frons fulvous; face and whole external orbits and all tarsi whitish. Wings hyaline, stigma and nervures piceous.

♂ differs in having the whole head except the whitish external orbits dull red; base of occiput nitidulous; basal flagellar joints longer, though in the same proportions; propleuræ dull testaceous; anterior femora and tibiæ piceous.

Length 9 mm.; abdomen 5 mm.; petiole 2 mm.; terebra in ♀ 11 mm. A single pair, now in British Museum, taken in the Ding-Ding Island in the Indian Ocean during 1896 and 1900.

6. ALBICEPS Elliott.

Parastephanellus albiceps Elliott (2), p. 130, ♀.

♀. Frons subarcuate striate, the striæ broken into granules, vertex and occiput finely granulate striate; second flagellar joint one and a half times as long as first, third slightly shorter than first and second together. Pronotum very finely trans-striate throughout, neck very short; mesonotum subglabrous; scutellum normal; propleuræ finely, obliquely striate; mesopleuræ alutaceous; metapleuræ punctate, separated by a deep crenulated sulcus from the alutaceous and punctate median segment. Petiole trans-striate, shorter than the rest of the smooth abdomen. Terebra rather shorter than body, rufescent, apically black. Hind legs with coxæ trans-striate, femora finely alutaceous, bidentate; tibiæ compressed to middle.

Black; mandibles basally flavous, all orbits broadly white; antennæ basally, anterior legs except middle coxæ rufescent, hind tibiæ and tarsi much paler. Wings hyaline; stigma and nervures brown.

Length $9\frac{1}{2}$ mm.; abdomen $5\frac{1}{2}$ mm.; petiole $2\frac{1}{2}$ mm.; terebra $8\frac{1}{2}$ mm.

Habitat: Victoria, Australia. R. E. Turner, 1907.

Easily known by the extremely broadly white orbits.

7. MACULIFRONS Cam.

Megiseleus maculifrons Cam. (3), 1902, p. 32, ♂.

♂. Frons closely punctate; vertex and occiput transrugose; posterior margin of head bordered. Second flagellar joint twice as long as first, third shorter than first and second together. Prothorax short, nearly smooth and shining, neck with a transverse carina; mesothorax closely and finely punctate, dull;

scutellum smooth. Mesopleuræ nearly smooth; metapleuræ transrugose, separated by a sulcus from the cribrate-punctate median segment. Petiole trans-striate, longer than rest of abdomen, which is feebly shining, discally depressed. Hind legs with coxæ trans-striate above; femora alutaceous, shining, bidentate; tibiæ constricted to beyond middle.

Black; head red, upper part of frons, the vertex, and occiput black, with a broad red mark behind the posterior ocelli; outer orbits yellowish; scape and basal flagellar joint rufous. Wings subfuscous, nervures black.

Length 12 mm.

Habitat: Baram District, Low Country, Sarawak. Robt. Shelford. Type in British Museum.

The peculiar generic name "*Megiseleus*" appears to be a printer's error. If the writing were indistinct, the "ch" might easily be mistaken for "ele."

8. EBURNEUS Morley.

Parastephanelius eburneus Morley (1), p. 35, ♀ ♂.

♀. Frons rugose, trans-striate. The three anterior frontal tubercles acuminate, front one longest and recurved; posterior pair smaller and rounded. Occiput finely trans-striate. Posterior margin of head bordered. Second flagellar joint one and a half times as long as first; third shorter than first and second together. Neck short, smooth, and shining; semiannular finely rugose. Mesopleuræ obsoletely trans-striate and dull; metapleuræ smooth and shining, separated by a deep sulcus from the median segment, which is smooth, with large, diffuse punctures. Petiole with basal half finely trans-striate, longer than remainder of abdomen, which is dull and obsoletely punctate. Terebra shorter than body, sheaths black. Hind legs with coxæ obsoletely transaciculate; femora nearly smooth and shining, bidentate; tibiæ compressed to middle.

Black; face, clypeus, mandibles except apically, and a streak at the inner orbits testaceous white; a broad stripe from base of mandibles to near occiput ivory-white; scape and basal flagellar joint testaceous; base and apex of intermediate tibiæ white. Wings clear hyaline, stigma pale.

Length 6 mm.; terebra 5 mm.

♂. Similar to ♀; petiole piceous, genital valvulæ testaceous. Length $3\frac{1}{2}$ mm.

The ♀ was taken by O. S. Wickwar at Candy, Ceylon, Feb. 1910; the ♂ by Green, on a leaf infested by a Coccid, *Hemichionaspis brasiliensis*, at Pradenula, Ceylon, June 1909. Types in British Museum.

Similar to the Australian *P. rufo-ornatus* Cam., ♂, but the petiole is longer, the sculpture of median segment is different, and the coloration is very distinctive.

9. *DAMELLICUS* Westw.

Stephanus damellicus Westw. (5), p. 126, pl. xxiv. fig. 2; Schlett., p. 116, ♀. *Hemistephanus damellicus* Morley (1), p. 112. *Parastephanellus d.* (2), p. 29, ♀.

Westwood's original description is as follows:—

"Niger; capite et antennarum basi piceo-rufis; pedunculo abdominis pedibusque rufis; capite antice trituberculato verticeque carina parva transversa instructo, linea tenui alba utrinque sub oculos; antennis gracillimis, pone medium fuscis; collari trigonotruncato, collo lævi, metanoto basi serie striolarum brevissimarum notato, pedunculo abdomen longitudine æquanti, transversim lævissime striolato; abdomine ovali nitido, oviductu longitudine caput et corpus totum æquanti; pedibus posticis crassis, coxis elongatis transversim carinatis, femoribus clavatis, subtus serratis dentibusque tribus majoribus armatis; tibiis pone medium subito dilatis; tarsi posticis 3-articulatis; alis hyalinis venis distinctis nigris, stigmatibus nigro basi lutescenti.—*Hab.* Austral. In Mus. Hopeano Oxoniæ.

"The mandibles are robust, their inner margin (seen from above) has two obtuse teeth, seen laterally they are more irregular. The marginal cell is slightly open at the tip, the vein forming the hinder margin of the incomplete second submarginal cell is abbreviated, and the second discoidal cell is incomplete, the vein forming its hinder margin being obsolete.

"Species proxima *Stephanus hematipoda* Montrouzier, Ann. Soc. Agric. Lyon, T. vii. 1, p. 113. *Hab.* Woodlark Island."

Having examined the beautifully preserved type, I am able to correct and complete the above description.

Frons anteriorly rugose-punctate, transrugose above, vertex with a very conspicuous transverse carina, behind which the head is areolate rugose, becoming trans-striate towards the strongly bordered posterior margin. The three anterior tubercles very prominent, the two posterior subobsolete. Antennæ very slender; basal flagellar joints normal. Neck smooth, semiannular transrugose. Mesonotum coarsely but not closely rugose-punctate; metanotum (the small strip visible) longitudinally striate. Mesopleuræ finely punctate; metapleuræ punctate and separated from the rugose median segment by a line of punctures. Petiole finely striate throughout, slightly shorter than remainder of abdomen, which is smooth and shining. Terebra slightly shorter than body. Hind legs with coxæ strongly trans-striate; femora bidentate; tibiæ compressed to slightly beyond the middle. Black; the anterior tubercles and the carina on vertex are bright red, remainder of head and base of antennæ dull red, with a broad white line on each side, starting from the posterior margin, passing under the eyes, and meeting over the mouth. Neck of pronotum, mesonotum partly, petiole, and legs red. Wings hyaline, stigma rufescent, basally paler, nervures black.

Length $8\frac{1}{2}$ mm.; abdomen 5 mm.; petiole 2 mm.; terebra 8 mm.

The "carina parva transversa" is unusually large, and its bright red colour makes it very conspicuous. The small visible portion of the true metanotum is longitudinally striate, but the median segment is rugose. The hind femora are furnished in the anterior half beneath with two comparatively long and very sharp spine-like teeth, and can only be called bidentate. There is a slight blunt projection near the base, more pronounced on the right femur than on the left, but these do not count as teeth. The white line on the head, extending, as one might say, from ear to ear, is very characteristic.

Enderlein ((1), p. 196) describes both sexes of a *Parastephanellus*, which he considers to be identical with the present species, differing in colour only. The neck coarsely longitudinally striate, the semiannular slightly rugose in front, smooth behind; the petiole as long as remainder of abdomen and apically smooth. No mention is made of the conspicuous carina on vertex, nor of the white line on head, also petiole and legs are differently coloured. They are closely-allied species, but that of Westwood comes from Australia, whereas Enderlein's was taken in New Guinea, Bismarck Archipelago, and Borneo. For this species—*rubripictus* Elliott—see p. 759.

The measurements given by Westwood in lines are approximately correct, and the petiole, remainder of abdomen, and terebra appear to be of equal length. Accurate measurements show slight differences, which may be ignored for purposes of identification, as in my table.

The present species is closely allied to, and may even be identical with *P. pictipes* Roman.

The British Museum has of this species 7 ♀♀, taken by R. E. Turner at Mackay, Queensland, and 1 ♀ from the Swan River. They vary in size from $6\frac{1}{2}$ mm., terebra 7 to 13 mm., terebra $14\frac{1}{2}$ mm. The only difference from the type is in the slightly longer terebra, which is shorter than the body in the type but longer in these. I do not consider this sufficient to create a new species.

10. *PICTIPES* Roman.

Parastephanellus pictipes Roman (1), p. 1, ♀.

♀. Head seen laterally scarcely higher than long. Frons strongly but scarcely transversely rugose; the five tubercles rather prominent but obtuse, the vertex behind them furnished with a short carina; occiput towards base more coarsely and more transversely striate, with indistinct longitudinal impression; posterior margin of head emarginate, not bordered. Antennæ short, scarcely reaching beyond thorax, 23-jointed; pedicellus sub-elongate, half as long as scape; first flagellar joint scarcely longer than scape, second one and a half times as long as first;

third and fourth of equal length and little longer than second. Thorax sub-depressed, pronotum closely and finely trans-striate, neck apically deeply emarginate and bifoveolate. Mesonotum coarsely rugose-punctate, with anterior central longitudinal line of punctures, a strongly crenulate line before scutellum, which is rugose, apically subglabrous, alutaceous. Mesopleuræ tumid, scabrous, with broad and smooth posterior margin; metapleuræ prominent, irregularly scabrous. Sternum smooth and shining, very finely trans-striolate, the punctate mesolcus open behind. Median segment depressed, coarsely rugose-reticulate, basally laterally more finely sculptured. Petiole about as long as remainder of abdomen, centrally slightly incrassate, trans-striate, with smooth apical margin; second segment half as long as first, shining, microscopically reticulate; remaining segments transverse, third to seventh finely and closely trans-striolate, eighth exserted, coriaceous. Apical margins of ventral segments sparsely pale pubescent; hypopygium apically compressed and subacuminate. Terebra shorter than body, sheaths black. Hind legs with coxæ trans-striolate inside; femora bidentate, reticulate, basally externally smooth and shining; tibiæ reticulate, half as long again as femora, with a central, shining, acute-angled impression behind (? constricted to middle and there impressed). Wings extending beyond apex of petiole; in fore wing, stigma nearly five times as long as its breadth, costa not extending beyond it; in hind wings the costa extends to within a third of the apex of wing.

Black; basal half of flagellum, a straight line on cheeks from base of mandibles, touching the eyes, to the temples—not reaching the posterior margin of temples—apices of coxæ, trochanters partly, extreme base and apex of anterior femora, anterior tibiæ chiefly, posterior tibiæ basally, and all tarsi red; intermediate tarsi basally white. Wings hyaline, stigma and nervures black, former basally narrowly pale; radix rufescent, tegulæ nigro-fuscous.

Length 10–11 mm.; terebra 9·5 mm.

Taken by Dr. E. Mjöberg's Swedish Scientific Expedition to Australia, at Derby, Kimberley Division, West Australia, Oct. 1910. 1 ♀.

This is possibly a dark form of *P. damellicus* (Westw.), Enderl., as both have the same unusual streak of colour on the cheeks. But Westwood describes his species as having three large teeth on the hind femora, whereas the present species has only two. Enderlein (Arch. Naturg. 1901) describes a supposed *damellicus* Westw., from New Guinea, the Bismarck Archipelago, and Borneo, which has two femoral teeth but not the long pale streak on cheeks, and also differs from *pictipes* in the sculpture of the pronotum. The present species is now the only *Parastephanellus* in the Stockholm Museum; the nearest species with which it might be compared is the somewhat unlike *Hemistephanus texanus* Cresson. A detailed description has been given so that this species may in future be clearly understood.

Westwood's incorrect description of his *damellicus* as having the hind femora tridentate has caused much confusion. The present species appears to differ chiefly in the five frontal tubercles being prominent, posterior margin of head not bordered, and pronotum somewhat differently sculptured. The peculiar coloration of the head points to close connection between the two, but I do not venture to synonymize them for the present.

11. BREVISTIGMA Enderl.

Parastephanellus brevistigma Enderl. (3), p. 203, ♂.

♂. Frons finely arcuate transrugose; the three anterior frontal tubercles acuminate, the two posterior flatly rounded; vertex with three trans-carinae, the space between them polished; occiput finely and closely trans-striate. Antennae slender and about 25-jointed. Pronotum finely trans-striate, its lateral angles sharply transrugose, posterior margin polished smooth, neck short. Mesonotum coarsely rugose-punctate; scutellum smooth. Mesopleurae smooth, very finely striate; metapleurae smooth, reticulately punctate in front above, separated by a row of deep punctures from the median segment, which is coarsely, but not reticulately punctate. Petiole slender, finely and irregularly transrugose, about as long as remainder of abdomen. Hind coxae finely trans-striate, often granulate; femora bidentate.

Head clear ochre-yellow, vertex slightly nigrescent; apical two-thirds of antennae brown; prothorax ferruginous, posterior half black above; remainder of thorax, abdomen, hind coxae, femora, and tibiae black. Base of second segment and whole of anterior legs ferruginous. Wings hyaline, faintly infusate; stigma $\frac{3}{4}$ mm. long, and, like the nervures, brown.

Length 6.4 mm.; abdomen 3.9 mm.; petiole 1.9 mm.; fore wing 4.4 mm.

Habitat: Hankau (Koshun), Formosa; 28th April, 1912. Type in Dahlen Museum. (H. Sauter.)

12. PALLIDITARSIS Cam.

Megischus palliditarsis Cam. (8), p. 56, ♀. *M. ruficollis* Cam. l. c. p. 57, ♂.

♀ ♂. Frons closely subareolate trans-striate; vertex more finely trans-striate and occiput nearly smooth. Three frontal tubercles short and bluntly rounded in ♀, more pointed in ♂. Posterior tubercles distinct, but broad and blunt. Posterior margin of head simple. A strong carina between the posterior ocelli and two smaller ones behind it. Second flagellar joint a little longer than first and about as much shorter than third. Pronotum, pro- and meso-pleurae smooth; scutellum smooth, with a few diffuse punctures; the bordering furrows weakly crenulated in ♀, smooth in ♂. Metapleurae smooth in ♀, slightly aciculated in ♂. Petiole closely trans-striate throughout, longer than rest

of abdomen, which is smooth. Hind legs with coxæ closely trans-striate, femora smooth and bidentate; tibiæ constricted to beyond middle in ♀, not quite so far in ♂. Terebra in ♀ longer than body.

♀. Black; head rufo-testaceous, outer orbits broadly white, propleuræ and prosternum rufous, base of second segment and the anterior legs rufo-testaceous; middle tibiæ basally broadly, apically narrowly white; hind legs black. Front tarsi partly, middle tarsi entirely, and hind metatarsus except at apex white.

♂. Similar to ♀, but head darker red, face and oral region pale; prothorax entirely red, basal antennal joints paler, anterior legs testaceous, femora darker, hind legs black with knees rufous, constricted part of tibiæ and all tarsi white. Wings, in both sexes, hyaline, nervures and stigma rufous in ♀, darker, with pale base to stigma in ♂.

Length, ♀, 6 mm.; abdomen $3\frac{1}{2}$ mm.; petiole 2 mm.; terebra 9 mm. Length, ♂, 7 mm.; abdomen $3\frac{1}{2}$ mm.; petiole 2 mm.

There is no doubt that the two species of Cameron are ♂ and ♀ of the same. His statement that the hind femora of *M. ruficollis* are trans-striate is an evident mistake for coxæ. There are few things more deceptive than the relative proportions of petiole and rest of abdomen. Cameron gives the petiole in this species as "twice longer"; the actual measurements are 2 and $1\frac{1}{2}$ mm.

Habitat: Kuching, Borneo. John Hewitt. Types in British Museum.

13. *scirtus* Elliott.

Parastephanellus scirtus Elliott (2), p. 163, ♂.

♂. Frons strongly arcuate striate, vertex and occiput trans-striate, posterior frontal tubercles subobsolete, two carinæ between the posterior ocelli; posterior margin of head bordered. Scape longer than cheeks; second flagellar joint one and a half times as long as first; third rather longer than second. Pronotum trans-striate, the extreme base smooth, neck short; mesonotum finely punctate; scutellum normal; propleuræ obliquely striate; mesopleuræ smooth; metapleuræ coarsely punctate and separated by a sulcus from the closely and finely punctate median segment. Petiole finely trans-striate, as long as rest of abdomen, which is smooth and shining. Hind coxæ coarsely, their femora finely trans-striate, the latter somewhat strongly inflated, bidentate; tibiæ compressed to a little beyond middle.

Black; head dark red, antennæ pale rufescent, becoming gradually darker towards the apex; extreme base of pronotum, front legs, middle tibiæ and tarsi, hind tarsi, and base of second segment rufescent. There is a scarcely noticeable paler line under the eyes. Wings hyaline, slightly iridescent; stigma rufescent, basally pale; nervures blackish.

Length 8 mm.; abdomen 5 mm.; petiole $2\frac{1}{2}$ mm.

Habitat: Pusa, Bengal. (T. B. F.) 21.vi.11.

This is the first specimen of this subgenus I have seen from India proper, all the others being from more southern localities; one from Ceylon, one from Ding-Ding Island in the Indian Ocean, and several from Borneo and Australia. It differs from all other males yet described in the sculpture of the head and hind legs, and in colour.

The males are decidedly rarer than the females, and the mate of this species should be discovered ere long.

14. CLARIPENNIS Cam.

Megischus claripennis Cam. (8), p. 56, ♀.

♀. Frons finely and closely transrugose, vertex subarcuate striate, occiput finely striate, almost smooth behind. The anterior frontal tubercle longest, and separated from the next pair by a greater distance than these are from each other, the enclosed space being unusually elongate. Three carinæ between the posterior ocelli, the front one strongest. Posterior margin of head strongly bordered. Second flagellar joint half as long again as first; third longer than second, but shorter than first and second together. Pronotum entirely smooth and shining; mesonotum shagreened, and with longitudinal furrow; scutellum elongate and smooth. Propleuræ smooth; mesopleuræ aciculate; metapleuræ obliquely striate. Median segment strongly reticulate punctate. Petiole longer than rest of abdomen, closely trans-striate; remainder of abdomen smooth. Terebra half as long again as body, sheaths black. Hind coxæ closely trans-striate; hind femora smooth, bidentate, their tibiæ compressed to a little beyond middle.

Black; the outer orbits broadly, the anterior tarsi and the middle tibiæ testaceous, hind metatarsus basally white; head rufo-testaceous, vertex blackish, four basal antennal joints pale rufo-testaceous; the second segment basally rufous. Wings clear hyaline; stigma and nervures almost black.

Length 8 mm.; abdomen $3\frac{1}{2}$ mm.; petiole 2 mm.; terebra 13 mm.

Habitat: Kuching, Borneo. John Hewitt, B.A. Type in British Museum.

15. RUFO-ORNATUS Cam.

Stephanus rufo-ornatus Cam. (5), p. 45, ♂. *Parastephanellus rufo-ornatus* Elliott (1), p. 92, ♂. *P. rufid-ornatus* Morley (1), pp. 35 et 112, ♀ ♂.

♂. Frons closely, rugosely, and almost reticulately punctate; vertex closely trans-striate; arcuate striæ between frontal tubercles, and a distinct central longitudinal sulcus on vertex. Second flagellar joint one and a half times as long as first. Pronotum short, finely and closely trans-striate. Mesonotum coarsely rugose; scutellum smooth, with two short lateral

impressions at apex, between which it is striate. Pro- and meso-pleuræ obscurely striate; apical half of metapleuræ irregularly reticulate. Median segment finely and closely punctate, apically centrally striate. Petiole finely and closely trans-striate, as long as rest of abdomen. Hind femora bidentate.

Black; a broad yellow line from base of antennæ to beyond eyes; mandibles pale yellow; antennæ, frontal tubercles, scutellum, apex of petiole, anterior legs, hind coxæ partly, trochanters, apices of femora, the tibiæ and tarsi rufous. Wings clear hyaline; stigma fuscous, basally pale; nervures brown. Abdomen from second segment sometimes red.

Length 5-10 mm.

♀. Similar to ♂. Petiole slightly shorter; terebra longer than body.

Length 13-14 mm.; abdomen $8\frac{1}{2}$ mm.; petiole 4 mm.; terebra 15 mm.

Habitat: ♂. Burnett River, Queensland (R. Semon); Kuranda, Queensland (Dodd), var. Kuranda, 1904. ♀. Mackay, Queensland; Swan River, West Australia.

The ♀♀, together with the ♂♂ from Kuranda, are in the British Museum.

Easily distinguished from *P. brevistigma* Enderl. by the sculpture of metapleuræ and median segment, and by the colour.

16. RUBRIPICTUS Elliott.

Stephanus damellicus Enderl. (nec Westw.) (1), p. 196, ♀♂. *Parastephanellus rubripictus* Elliott (1), p. 129, ♀♂.

♀♂. Frons rather coarsely rugose-punctate, laterally transrugose; the three anterior tubercles very acuminate, posterior pair small; vertex and occiput transrugose; posterior margin of head sharply bordered. Antennæ very slender; basal flagellar joints normal. Neck coarsely longitudinally striate; semiannular feebly rugose, with polished posterior margin. Mesonotum diffusely and coarsely rugose-punctate. Scutellum centrally smooth, with marginal puncturation. Metanotum longitudinally striate. Mesopleuræ pubescent, finely and diffusely punctate; metapleuræ separated by a row of punctures from the coarsely and reticulately rugose median segment. Petiole finely rugose, apically more or less smooth, as long as the remaining segments together. Terebra in ♀ as long as body, spicula red-brown, sheaths black. Legs finely pubescent; hind coxæ densely transrugose; hind femora bidentate, their tibiæ compressed almost to middle.

Black; face, mandibles except apices, cheeks, 4 or 5 basal antennal joints, anterior legs and hind tibiæ red-brown; petiole and hind femora sometimes brownish or rufescent. Wings clear hyaline; stigma long and narrow, brown.

Length, ♀, 11-12 mm.; ♂, 6-11 mm.

Habitat: Milne Bay (Micholitz); Bismarck Archipelago (Dr. Dahl); Borneo (Grabowsky).

This species is distinguished from all others in this subgenus by the long and narrow stigma; from *P. pygmaeus* Enderl. it differs also in the longer basal flagellar joints and entirely hyaline wings.

Enderlein (*l.c.*) considers this species to be merely a dark variety of *P. damellicus* Westw. The sculpture of the pronotum is entirely different, the petiole and hind legs are black, the characteristic white line on face is wanting, and the stigma is longer and narrower. These points, taken in conjunction with the different localities, appear to justify me in regarding them as separate species.

17. MALAYANUS Cam.

Stephanus malayanus Cameron (6), p. 43, ♀.

♀. Frons closely and coarsely transrugose; vertex arcuate striate. Anterior frontal tubercle very large; temples broad and inflated. Second flagellar joint half as long again as first. Pronotum striate at apex of basal fovea; propleuræ smooth above, closely striate beneath; mesopleuræ nearly smooth; meta-pleuræ apically coarsely reticulate. Scutellum smooth, with large basal transverse fovea, from which two lines of foveate punctures run to apex. Median segment smooth, with large diffuse punctures. Petiole closely trans-striate, as long as remainder of abdomen. Terebra slightly longer than body, sheaths black. Hind coxæ irregularly trans-striate; hind femora bidentate.

Black; outer orbits, front tubercle, face, frons, and scape more or less obscurely red; anterior legs brown, their tarsi paler; basal joints of hind tibiae testaceous. Wings clear hyaline; stigma and nervures black.

Length 11 mm.; terebra 12 mm.

Habitat: Mankwari, New Guinea (May).

Cameron states that this species much resembles *P. maculifrons* Cam., from Borneo, but is more slenderly built, with hyaline wings and a fovea at base of scutellum, *maculifrons* having the wings infumate, no fovea at base of scutellum.

HEMISTEPHANUS.

Enderlein (4), pp. 189 et 301.

Dr. Günther Enderlein defines this subgenus as having that part of the median nervure beyond the external submedian cell obsolete and the cell open behind; the discoidal cell almost as large as the cubital and always touching the submedian cell; stigma long and narrow. Type: *H. macrurus* Schlett.

This group, or subgenus, appears to be confined to South America, being at present known chiefly from Brazil, with a few

from Colombia, Peru, and Chili. It seems probable that this is not the true distribution, or rather, that they are spread throughout the whole of the warm parts of the Southern Continent, their apparent absence being due to the absence of collectors.

The males are poorly represented, only 6 out of 17 species here recorded being known in that sex. Szépligeti briefly mentions *S. (H.) wüstenii*, ♂, stating merely "♂, tarsi four-jointed, metatarsus brown" (p. 534). The statement that the hind tarsi are four-jointed is repeated with respect to several other species, and seems inexplicable, seeing that he correctly gives others as five-jointed.

As a general rule, they are black insects with red head and nearly hyaline, or evenly infusate wings. The known exceptions are: *H. marginalis* Schlett. with black head, and *H. maculipennis* and *submaculatus* Westw. with centrally darker wings; the types of the two last are in the British Museum.

Roman works out this subgenus in (2), largely based on material collected by himself in the Amazon Region in 1914-15. He does not consider the difference in neurulation of the fore wing to be of sufficient value to justify the erection of a new genus—I prefer to call it a subgenus—and proposes to call it merely a group of the genus *Stephanus*. Three main reasons for this are advanced:—1st. That they differ from *Stephanus*, s. str., only in a single wing character, and that there is in the Stockholm Museum a transition form in which the external submedian cell is only slightly open. It is not unusual to find in *Stephanus*, s. str., that the apical transverse nervure bounding this cell does not actually join the median nervure, thus leaving the outer lower angle of the cell slightly open, but the median nervure, nevertheless, extends to the full length of the cell. 2nd. As far as is known, all the S. American *Stephanus*, s. str., are 25 mm. or more in length, *Hemistephanus* all less than 25 mm. I am unable to decide as to the value of this fact. 3rd. *Megischus texanus* Cress., originally described from a specimen with mutilated wings, is said to be represented in the Stockholm Museum by a topotype and to be a *Hemistephanus*, but differing in colour and sculpture from the S. American species, showing strong affinities to the N. American species of *Stephanus*, s. str. I should be not inclined to withdraw the subgenus on this evidence alone. There may be a mistake in identification, or the northern representatives of the group may have their special characters. For the present I place that species in *Stephanus*, s. str.

Practically nothing is known of the life-history of these insects. They are always found on or around dead or dying wood, and are certainly forest dwellers, parasitic on wood-boring larvæ. Roman (*l. c.*) suggests that their hosts are to be found among the Brentidæ, their larvæ being elongate and apparently suitable for those of slender elongate insects like the Stephanidæ; also they are both found in all warm countries. Buprestidæ may also be considered, but Brentidæ he thinks most probable.

Table of Species.

♀.

- (18.) 1. Posterior margin of head produced collar-like.
 (13.) 2. Petiole distinctly longer than rest of abdomen.
 (4.) 3. Petiole twice as long as rest of abdomen; pronotum posteriorly rugose punctate; abdomen from second segment shining smooth; terebra about $1\frac{1}{3}$ times as long as body. 1. *collarifer* Schlett.
 (3.) 4. Petiole not more than half as long again as rest of abdomen.
 (6.) 5. Head black; neck indistinctly transrugose, pronotum oblique, rugose behind 2. *marginalis* Schlett.
 (5.) 6. Head red.
 (8.) 7. Neck transverse, hind coxæ smooth beneath 3. *glabricoxis* Roman.
 (7.) 8. Neck longer than broad; hind coxæ trans-striate beneath.
 (10.) 9. Neck twice as long as broad; pronotum smooth, diffusely punctate behind only, median segment with punctures of varied size, interstices partly punctate-rugose... 4. *peruanus* Enderl.
 (9.) 10. Neck not more than $1\frac{1}{3}$ times as long as broad.
 (12.) 11. Neck of pronotum laterally angulated; punctures on median segment uniform, interstices smooth 5. *angulicollis* Roman.
 (11.) 12. Neck of pronotum not laterally angulated; interstices on median segment alutaceous [Cam. 6. *erythrocephalus*
 (2.) 13. Petiole at most as long as rest of abdomen.
 (15.) 14. Terebra scarcely longer than body; median segment centrally narrowly, laterally broadly impunctate 7. *tener* Schlett.
 (14.) 15. Terebra at least one-third longer than body.
 (17.) 16. Petiole as long as rest of abdomen; terebra half as long again as body 8. *wüstnei* Schlett.
 (16.) 17. Petiole shorter than rest of abdomen; terebra one-third longer than body [Schlett. 9. *limpidipennis*
 (1.) 18. Posterior margin bordered or not bordered, but not produced collar-like.
 (26.) 19. Posterior margin of head bordered.
 (21.) 20. Terebra twice as long as body; semiannular smooth and shining 10. *macrurus* Schlett.
 (20.) 21. Terebra not more than half as long again as body.
 (23.) 22. Median segment confluent punctate.
 (22 b.) 22 a. Scutellum smooth, with marginal punctures only. 27 mm. 11. *intermedius* Szépl.
 (22 a.) 22 b. Scutellum closely punctate throughout. 13 mm. 11 a. *granulatus* Elliott.
 (22.) 23. Median segment diffusely, not confluent punctate.
 (25.) 24. Semiannular striate; metapleuræ coarsely alutaceous and punctate; hind coxæ closely rugose; wings hyaline. 12. *pehlkei* Enderl.
 (24.) 25. Semiannular smooth; metapleuræ irregularly rugose; hind coxæ with sparse scale-like rugosities, wings subhyaline [Westw. centrally slightly darker 13. *submaculatus*
 (19.) 26. Posterior margin of head simple, not bordered.
 (28.) 27. Semiannular and petiole except basally smooth; wings subhyaline, centrally darker [Westw. 14. *maculipennis*
 (27.) 28. Semiannular more or less rugose; wings not centrally darker.
 (30.) 29. Terebra more than half as long again as body; petiole as long as rest of abdomen 15. *ruficeps* Cam.
 (29.) 30. Terebra little or not longer than body.
 (32.) 31. Terebra a little longer than body; petiole shorter than rest of abdomen; wings clear hyaline 16. *vadosus* Schlett.
 (31.) 32. Terebra only as long as body; petiole slightly shorter than rest of abdomen; wings infumate 17. *cylindricus* Westw.

♂.

- (6.) 1. Posterior margin of head produced collar-like.
 (3.) 2. Petiole shorter than rest of abdomen; collar short. 7. *tener* Schlett.
 (2.) 3. Petiole longer than rest of abdomen.
 (5.) 4. Petiole nearly twice as long as rest of abdomen ... 1. *collarifer* Schlett.
 (4.) 5. Petiole a little longer than rest of abdomen; neck long and slender 4. *peruanus* Enderl.
 (1.) 6. Posterior margin of head simple, not bordered.
 (8.) 7. Semiannular coarsely, obliquely rugose; 4th tergite finely longitudinally parallel striate; wings slightly infumate. 17. *cylindricus* Westw.
 (7.) 8. Semiannular quite or nearly smooth.
 (10.) 9. Wings clear hyaline; 4th tergite divergently longitudinally striate 16. *vadosus* Schlett.
 (9.) 10. Wings centrally darker 14. *maculipennis* [Westw.]

1. COLLARIFER Schlett.

Stephanus collarifer Schlett., p. 141, ♀ ♂.

♀. Frons arcuate to oblique rugose; all five frontal tubercles prominent; occiput coarsely longitudinally to obliquely rugose; posterior margin of head reflexed and produced into a long, translucent collar. Basal flagellar joints normal. Neck with a strong transverse fold, behind which it is slightly transrugose; semiannular transrugose, laterally finely punctato-rugose. Mesonotum centrally smooth, with indistinct longitudinal row of punctures and two divergent, superficially punctate impressions, remainder transrugose and diffusely punctate. Scutellum smooth, with a few isolated but deep marginal punctures. Mesopleuræ finely alutaceous and shining above, sparsely punctate beneath; metapleuræ coarsely reticulate rugose, not separated from the median segment by any sulcus. Median segment with diffuse, shallow punctures, between which it is finely alutaceous; marginal sulci distinct and sometimes an indistinct central impression. Petiole transrugose, nearly twice as long as the smooth and shining remainder of abdomen, and almost longer than the hind coxæ, trochanters, and femora together. Terebra longer than body, its sheaths white-banded before apex. Hind legs with coxæ trans-striate between coarse, scale-like rugosities; femora polished smooth, bidentate; tibiæ compressed to beyond middle; tarsi three-jointed.

Black; head entirely, mandibles and antennæ basally ferruginous. Wings subhyaline; "neuration complete, excepting that part of the median nervure outside the submedian cell."

♂. Similar to the ♀, but head and thorax more finely sculptured, median segment closely cribrate punctate; hind tarsi five-jointed.

Length, ♀, 18 mm.; terebra 24 mm.; ♂, 12 mm.

Habitat: Brazil (Tefe on the Amazon and San Paulo Prov.); Surinam. Type in the Royal Nat. Hist. Museum, Berlin; co-type in coll. Wüstnei, in Sonderburg.

This species is distinguished from all others by the extremely elongate posterior margin of the head, and by the great comparative length of the petiole, which is twice as long as the rest of the abdomen.

2. *MARGINALIS* Schlett.

Stephanus marginalis Schlett., p. 133, ♀.

♀. Frons and occiput coarsely and irregularly rugose, a few arcuations immediately behind frontal tubercles. Posterior margin of head reflexed collar-like. Second flagellar joint three times as long as first; third as long as first and second together. Neck indistinctly finely rugose, especially centrally; semiannular finely obliquely rugose. Mesonotum centrally polished smooth, anteriorly and laterally rather coarsely transversely punctat rugose, the median line of punctures obsolete. Scutellum polished smooth, with a few very conspicuous punctures. Mesopleuræ almost smooth, with large, diffuse punctures; metapleuræ coarsely reticulate rugose, separated from the median segment by a polished smooth sulcus, which is broad in front, narrow behind. Median segment anteriorly smooth, centrally and posteriorly finely transrugose, coarser towards apex, with diffuse superficial punctures. Petiole basally distinctly, apically indistinctly transrugose, very little longer than rest of abdomen: second segment basally rugose, remainder of abdomen dull. Terebra scarcely longer than body, white-banded before apex. Hind legs with coxæ distinctly transrugose between widely placed scale-like rugosities; femora polished smooth, bidentate; tibiæ compressed to beyond middle.

Entirely black; wings slightly infumate. Length 25 mm.

Habitat: Bahia, Brazil. Type in Imp. Nat. Hist. Museum, Berlin.

This species strongly resembles *Stephanus furcatus* Lep. & Serv., *niger* Smith, and *sickmanni* Schlett., from all of which it may be distinguished—in addition to the neuration—by the reflexed posterior margin of the head and the elongate basal flagellar joints. The latter character, and the sculpture of the mesonotum will separate it from its nearest allies, *H. collarifer* Schlett. and *H. wüstneii* Schlett.

3. *GLABRICOXIS* Roman.

Stephanus (Hemistephanus) glabricoxis Roman (2), p. 9, ♀.

♀. Frons arcuate rugose, space between tubercles longitudinally rugose; vertex with 2–3 transcarinæ; occiput more longitudinally rugose; posterior margin of head collar-like, translucent. Scape as long as second flagellar joint; third joint rather longer than first and second together, fifth slightly shorter than fourth and as long as sixth. Neck transverse, apically deeply emarginate, transverse fold broad and deep; an oblique costa runs on each side of the fold, behind which the pronotum

is polished smooth; mesonotum anteriorly and laterally coarsely transrugose, posteriorly centrally smooth; impressed part of metapleuræ striate; median segment rugulose, especially laterally, the umbilical punctures do not extend to the sides; stigmal sulcus obsolete in front. Petiole slender, transrugose, longer than remaining segments; second basally transrugose, slightly aciculate beyond middle; third basally finely transreticulate, otherwise finely aciculate; fourth transverse, basal half transreticulate, apical half polished. Terebra one-third longer than body, its black apex more than half as broad as the subapical white band. Hind legs with coxæ polished smooth externally and beneath except towards apex, furnished with a few transverse piliferous granules, the usual close striation only visible above and inside; femora apically above and externally finely reticulate; tibiæ compressed to beyond middle; metatarsus about four times as long as broad. Fore wing not reaching apex of second segment.

Black; head except apices of mandibles, two basal antennal joints, and hind metatarsus red. Wings strongly infumate, stigma and nervures black, the former basally pale, radix and tegulæ black.

Length 18.5 mm.; terebra 24 mm.

Habitat: Cururuzinho, Rio Autaz, Brazil; 20.x.1914. One ♀ only.

Very similar to *H. angulicollis* Roman, differing especially in the sculpture of the short neck, the chiefly smooth coxæ and darker wings, as well as in minor details.

4. PERUANUS Enderl.

Hemistephanus peruanus Enderlein (4), p. 302, ♀; Roman (2), p. 7, ♀ ♂.

♀ ♂. Head rather large; frons transrugose, straightly in front, arcuately behind. All five frontal tubercles well developed, the anterior one produced into a carina in front. Vertex and occiput arcuate rugose, posteriorly smooth, without central impression; posterior margin of head broad and translucent. Second flagellar joint about two and a half times as long as first: third about as long as first and second together. Pronotum elongate, polished smooth, with a few punctures on semiannular and a strong apical carina. Mesonotum anteriorly with a median row of punctures, on each side of which is a smooth space, bounded by two divergent rows of punctures, outside of which are four strong rugosities, dorsally smooth, with large diffuse punctures. Scutellum smooth. Mesopleuræ coarsely and diffusely granulate rugose, separated from the median segment by a wavy longitudinal carina. Median segment with large and small shallow punctures on a partly rugose punctate ground, a short longitudinal impression before spiracles, laterally indistinctly rugose, anterior lateral angles smooth polished. Petiole basally finely transrugose, apex broadly smooth, longer than remainder

of abdomen; second segment with extreme base finely rugose, then microscopically longitudinally aciculate; third to beyond middle and fourth basally finely shagreened and dull, remainder smooth. Terebra rather longer than body, white-banded before apex. Hind legs with coxæ finely transrugose throughout; femora bidentate, smooth.

Black; head and 3-4 basal antennal joints ferruginous, thorax basally dark red-brown. Tarsi densely gold pubescent beneath. Wings strongly infumate, nervures black-brown, stigma slender.

Length, ♀, $19\frac{1}{2}$ mm.; abdomen $13\frac{1}{2}$ mm.; petiole $7\frac{1}{2}$ mm.; terebra $21\frac{1}{2}$ mm.; fore wing $11\frac{1}{2}$ mm. ♂, $9\frac{1}{2}$ -14 mm.

Habitat: Prov. Chanchamayo (Rio Toro), Peru; Rio Autaz and Manaos, Brazil.

This species is best known from all others by the elongate, unsculptured pronotum. It resembles *Parastephanellus collarifer* Schlett., from which it may be distinguished by neuration of wings, sculpture of median segment and abdomen, and by the colour.

5. ANGULICOLLIS Roman.

Stephanus (*Hemisteph.*) *angulicollis* Roman (2), p. 7, ♀.

♀. Frons arcuate rugose, space between the stout anterior tubercles longitudinally rugose, the posterior pair squamiform; vertex with 3-4 transcarinæ; occiput anteriorly more or less arcuately rugose, remainder smooth, centrally longitudinally aciculate, the rugose and smooth parts forming an obtuse angle with each other. Posterior margin of head produced into a translucent collar. Scape as long as second flagellar joint, third rather longer than first and second together, fifth as long as fourth and rather longer than sixth. Neck elongate, about one and a half times as long as broad; in front of the transverse fold is a broad sulcus, on each side of which is a strong raised costa running forwards and suddenly bent outwards, followed by others which become smaller in the direction of the fold; semiannular coarsely rugose before and below its polished posterior margin. Mesonotum with distinct central row of punctures, parapsidæ coarsely subtransversely rugose; impressed part of metapleuræ striate. Median segment with umbilicate punctures of about even size on a smooth ground, lateral impressions from spiracles to anterior margin. Abdomen more than twice as long as head and thorax, petiole slender, strongly trans-striate throughout, longer than the remaining segments together; extreme base of segment two transrugose, remainder polished and closely aciculate; third slightly longer than its apical breadth, basally finely transreticulate, rest aciculate, with broadly smooth apical margin; 3rd to 6th slightly apically emarginate; fourth not longer than its basal breadth, basal third transreticulate, centrally transaciculate, apically polished; remaining segments strongly transverse. Terebra about one-third longer than body, the black apex about

half as broad as the subapical white band. Hind legs with coxæ closely trans-striate, subobsoletely above, a few piliferous granules. Femora towards apex above and externally very finely reticulate; the tibiæ compressed to beyond middle; metatarsus five times longer than its maximum breadth. Fore wings not reaching apex of second segment.

Black; head except apices of mandibles, scape, first flagellar joint partly, and hind metatarsus obscurely red; palpi fuscous. Wings nearly hyaline; stigma black, basally narrowly pale; nervures and radix black, tegulæ pale, basally black.

Length 17.5 mm.; terebra 22 mm.

Habitat: Apipica, Rio Autaz, Brazil, 14.ix.1914. One ♀.

Apparently isolated by the peculiar structure of the neck, but near *H. peruanus* Enderl. in the elongate neck and small transverse fold.

6. ERYTHROCEPHALUS Cam.

Megischus erythrocephalus Cameron (1), p. 421, ♀. *Stephanus e.* Schlett., p. 140, ♀.

♀. Frons transrugose; occiput longitudinally rugose, with faint central sulcus; posterior margin of head broadly bordered. Neck longitudinally sulcate, laterally obliquely carinate; semi-annular trans-striate, posterior margin narrowly smooth. Mesothorax trans-striate throughout; scutellum smooth, with three large marginal punctures on each side; meso- and meta-pleuræ and median segment alutaceous, with diffuse large punctures, the two latter separated by a sulcus. Petiole trans-striate, longer than rest of abdomen; second segment basally coarsely transrugose, thence and basal two-thirds of third discally longitudinally aciculate and dull, remaining segments smooth. Terebra slightly longer than body, sheaths white-banded before apex. Hind legs with coxæ coarsely trans-striate; femora smooth, bidentate; tibiæ constricted in basal third, apical third felted beneath.

Black; head red. Wings hyaline, stigma and nervures black.

Length 19 mm.; abdomen 13 mm.; petiole 7 mm.; terebra 20 mm.

Habitat: Buguba, Panama. Type in British Museum.

Closely allied to *H. collarifer* Schlett., but sufficiently distinguished by the less developed posterior margin of head and shorter terebra.

7. TENER Schlett.

Stephanus tener Schlett., p. 142, ♀; Roman (2), p. 7, ♀ ♂.

♀. Frons finely arcuate rugose; occiput finely longitudinally to obliquely rugose, more transversely near posterior ocelli; the three anterior frontal tubercles very prominent; posterior margin of head produced into a short but distinct and translucent collar; cheeks scarcely as long as scape. Second flagellar

joint twice as long as first, third longer than first and second together. Neck elongate and very slender, posteriorly rugose, especially laterally; semiannular polished smooth, with a few fine punctures and oblique striations. Mesonotum laterally deeply punctato-rugose, with a central line of small but distinct punctures, on each side of which is a smooth space bounded by a row of broad punctures. Scutellum smooth, with a few conspicuous marginal punctures. Mesopleuræ rather smooth and shining above, dull beneath, with diffuse and shallow punctures; metapleuræ anteriorly finely and irregularly, posteriorly coarsely reticulate rugose, not separated by any sulcus from the median segment, which is punctate, except narrowly in the middle and broadly at the sides. Petiole transrugose, as long as remainder of abdomen; second segment smooth, basally rugose; third and fourth finely wavily transrugose, third centrally feebly longitudinally aciculate (in small individuals nearly smooth). Terebra as long as body, white-banded before apex. Hind legs with coxæ extremely finely transrugose between coarse, scale-like rugosities; femora polished smooth, bidentate; tibiæ compressed to beyond middle.

Black; head, scape, first flagellar joint, and mandibles basally ferruginous. Wings hyaline.

Length 9.3–14.5 mm. The type in the Hungarian National Museum at Budapest is 13 mm. long.

Habitat: type from Obidos on the Amazon, Brazil; Rio Autaz.

♂. Similar to ♀, but segment 4 subtransverse. Length 9–10.5 mm.

Habitat: Rio Autaz, Amazon District, Brazil; taken by Roman in 1914–15.

The elongate neck and shorter terebra will suffice to distinguish this species from *H. collarifer*, *limpidipennis*, and *wüstnei* Schlett., in all of which the neck is normal and the terebra longer than the body.

8. WÜSTNEI Schlett.

Stephanus wüstnei Schlett., p. 149, ♀.

♀. Frons irregularly rugose; vertex transrugose; occiput rugose-punctate. Cheeks shorter than scape. Posterior margin of head produced into a very distinct collar. Basal flagellar joints normal. Neck with a few deep rugosities; semiannular polished smooth, with diffuse punctures. Mesonotum with a central row of punctures, on each side of which is a smooth space, laterally rather densely rugose-punctate. Scutellum smooth, with a few fine marginal punctures. Mesopleuræ almost smooth and slightly shining above, dull and rather coarsely and densely rugose-punctate beneath; metapleuræ reticulate rugose, more coarsely behind than in front, not separated from the median segment by any sulcus. Median segment densely

cribrate punctate, with a distinct crenulate sulcus on each side. Petiole very finely and indistinctly trans-striate, as long as the remaining segments; second segment basally striate, rest smooth and shining, with a few dull spots due to microscopic sculpture. Terebra half as long again as body, sheaths white-banded before apex. Hind legs with coxæ finely striated between coarse rugosities, distinctly transrugose beneath; femora polished smooth, bidentate; tibiæ compressed to beyond middle.

Black; head, mandibles basally, and scape ferruginous. Wings hyaline.

Length 12 mm.; terebra 18 mm.

Habitat: Massanary, on the Amazon, Brazil. Type in collection of Herr Wüstnei, after whom it is named.

Schletterer states that this species is deceptively like *H. limpipennis*, but the sculpture of face is different, petiole and terebra longer, the former less distinctly sculptured and the median segment more densely punctate. From *H. marginalis* it may be distinguished by smaller size, shorter basal flagellar joints, shorter petiole, and shorter terebra.

Szépligetti, p. 533, states briefly of this species:—♂. Tarsi 4-jointed; metatarsus brown. ♀. Length 14 mm.; terebra 18 mm. Habitat: Fonteboa, on the Amazon, Brazil.

This error as to the ♂♂ having 4-jointed hind tarsi is repeated by him in other cases; they are always 5-jointed.

9. LIMPIDIPENNIS Schlett.

Stephanus limpipennis Schlett., p. 147, ♀.

♀. Frons rather coarsely and subarcuately rugose; vertex transrugose; occiput more coarsely punctato-rugose. Temples with a few punctures near eyes. Posterior margin of head produced into a long translucent collar. Cheeks decidedly shorter than scape. Basal flagellar joints normal. Neck of prothorax with two coarse transverse folds, between which it is deeply impressed and shining, behind them lightly punctato-rugose; semiannular rather densely, partly confluent punctate. Scutellum entirely smooth with a few marginal punctures. Mesonotum laterally rather coarsely and densely rugoso-punctate. Mesopleuræ smooth above, dull beneath, with large diffuse punctures; metapleuræ in front lightly and indistinctly, behind coarsely and deeply reticulate rugose, not separated from the median segment. Median segment shining smooth, with large diffuse punctures, centrally closer, marginal sulci distinct. Petiole trans-striate, basally irregularly rugose, distinctly shorter than remainder of abdomen, which is basally finely rugose, otherwise smooth with a few dull spots due to microscopic sculpture. Terebra evidently longer than body, white-banded before apex. Hind legs with coxæ finely trans-striate between very coarse rugosities; femora smooth, bidentate; tibiæ compressed to beyond middle.

Black; head, base of mandibles, and scape ferruginous. Wings extremely clear hyaline.

Length 14–15 mm.; terebra 19–20 mm.

Habitat: Massanary, Brazil. Type in Hungarian Nat. Museum, Budapest.

This species differs from *H. wüstneii* chiefly in the more arcuate rugose head, shorter and more coarsely sculptured petiole, and more diffusely punctate median segment. From *H. collarifer*, with which it agrees in size, colour, posterior margin of head, and length of terebra, it may be best known by the rugose-punctate occiput, shorter petiole, deeper sculpture of the semiannular, and by the very clear wings.

10. *MACRURUS* Schlett.

Stephanus macrurus Schlett., p. 128, ♀.

♀. Frons rather finely arcuate rugose; occiput in front arcuately to transversely rugose. Posterior margin of head strongly bordered. Cheeks shorter than scape. Basal flagellar joints normal. Neck of prothorax apically finely transrugose, the remainder, together with the whole semiannular, smooth and shining. Mesonotum sparsely punctate, centrally smooth, with a longitudinal row of broad punctures, laterally finely transrugose. Scutellum polished smooth, diffusely and finely punctate. Mesopleuræ above finely alutaceous and shining, beneath dull, with large and partly confluent punctures; metapleuræ dull, finely and diffusely punctate, separated from median segment by an indistinct and finely rugose sulcus. Median segment with diffuse large punctures, interspersed with finer ones. Petiole transrugose, basally more coarsely, a little shorter than rest of abdomen, which is basally rugose, then shining, with a few dull spots. Terebra twice as long as body, sheaths white-banded before apex. Hind legs with coxæ shining, finely trans-striate; femora polished smooth, apically finely sculptured and subopaque, bidentate; tibiæ longer than femora, compressed not quite to middle.

Black; head ferruginous, mandibles red, apically brown; antennæ pitch-brown, apically ferruginous; neck of prothorax brown or rufous; hind tarsi rufescent. Wings hyaline.

Length 23–24 mm.

Habitat: Surinam. Type in Royal Natural History Museum, Berlin.

This species may be distinguished from *H. maculipennis* Westw. by the sculpture of petiole and hind coxæ, longer terebra, and hyaline wings. From *H. collarifer* Schlett. and *limpidipennis* Schlett., which it resembles in form and colour, it may at once be known by the much less prominent posterior margin of head and by the longer terebra.

11. INTERMEDIUS Szépl.

Stephanus intermedius Szépl., p. 533, ♀.

♀. Frons coarsely and indistinctly arcuately rugose; vertex arcuately, occiput transversely rugose; cheeks short, only half as long as scape; posterior margin of head sharply bordered. Basal flagellar joints normal. Pronotum short, irregularly trans-striate, its posterior margin polished. Mesonotum coarsely and irregularly rugose; scutellum smooth, with coarse marginal punctures. Mesopleuræ in front finely punctate, a few coarse punctures behind and transrugose below; metapleuræ pubescent, with a few isolated punctures, separated by a deep smooth sulcus from the confluent punctate median segment. The petiole transrugose, rather shorter than rest of abdomen. Terebra rather longer than body, white-banded before apex. Hind legs with coxæ trans-striate; femora smooth, bidentate; tibiæ compressed in basal third.

Black; head, scape, and hind tarsi ferruginous. Wings infumate, light brown.

Length 27 mm.; terebra 30 mm.

Habitat: Tonantins, Brazil.

This species comes very close to *H. macrurus* Schlett., from which it may be distinguished by the confluent puncturation of the median segment, infumate wings, and much shorter terebra.

11 a. GRANULATUS Elliott.

Hemistephanus granulatus Elliott (2), p. 130, ♀.

♀. Head, excepting the smooth temples, granulate rugose, vertex and occiput more finely; posterior margin of head bordered; anterior tubercle prominent; three very conspicuous carinæ between the posterior ocelli. Basal flagellar joints normal. Pronotum rather short, trans-striate, with smooth posterior margin; mesonotum centrally trans-striate, laterally punctate; scutellum closely punctate throughout, marginal punctures deep. Mesopleuræ finely and closely punctate; metapleuræ coarsely punctate, separated by a crenulate sulcus from the median segment, which is confluent, almost granulate punctate. Petiole trans-striate, slightly shorter than rest of abdomen; base of second segment trans-striate, remainder smooth, feebly shining. Terebra very nearly as long as body, rufescent. Hind legs with coxæ trans-striate; femora smooth, bidentate; tibiæ compressed to middle.

Rufescent; all metatarsi flavous to white. Wings infumate.

Length 13 mm.; abdomen $7\frac{1}{2}$ mm.; petiole $3\frac{1}{2}$ mm.; terebra $13\frac{1}{2}$ mm.

Habitat: Swan River, West Australia.

The closely punctate scutellum and general granulate sculpture will distinguish this species.

If the label "Swan River" is correct, this is the first, and
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up to the present, the only species of this subgenus known from the Australian Region. The large size of the discoidal cell places it here, but all other known examples come from South America.

12. PEHLKEI Enderl.

Hemistephanus pehlkei Enderl. (4), p. 304; Roman (2), pp. 10 et 13, ♀.

♀. Frons closely, posteriorly arcuately rugose; space between tubercles transrugose in front, obliquely behind. Vertex strongly arcuate rugose; occiput in front arcuate rugose, becoming finer and straighter behind, with a broad, indistinct median impression; posterior margin of head finely bordered. Second flagellar joint normal, third longer than first and second together. Neck rather short, with four transverse carinæ; semiannular moderately transrugose, the narrow posterior border smooth, and with lateral very fine oblique striation. Mesonotum anteriorly irregularly punctate rugose, with a median line of confluent punctures, centrally smooth, laterally coarsely punctate. Scutellum polished smooth, laterally coarsely punctate. Mesopleuræ rugose reticulate and diffusely punctate; metapleuræ similarly, but more coarsely punctate, separated from median segment by an anteriorly obsolete carina. Median segment smooth, with microscopic reticulation and diffuse punctures which do not touch the middle or sides; marginal sulci wanting. Petiole trans-striate, apically more finely, shorter than rest of abdomen. Second segment basally rugose, towards apex longitudinally aciculate; third to fifth basally granulate aciculate; fourth apically longitudinally aciculate, remainder very finely aciculate. Terebra one-third longer than body, sheaths black, a subapical white band as broad as the black apex. Hind coxæ transrugose; hind femora smooth, bidentate.

Black; head except apices of mandibles and 3 or 4 basal antennal joints ferruginous; hind tarsi gold pubescent beneath. Wings clear hyaline; stigma black, nervures black-brown.

Length (type) $20\frac{1}{2}$ mm.; abdomen $14\frac{1}{2}$ mm.; petiole 6 mm. terebra 28 mm.; fore wing $10\frac{1}{2}$ mm. (Enderlein). 15– $20\frac{1}{2}$ mm. (Roman).

Habitat: Rio Magdalena, Colombia (Pehlke); Rio Autaz and Curururuzino, Amazon District, Brazil (Roman).

Roman states that this species is specially distinguished by the extremely fine oblique striation on the semiannular and at the lower end of the pleural furrow, also by the divergent longitudinal striation on the fourth tergite. The finely bordered posterior margin of the head and the carina between metapleuræ and median segment are characteristic, also the whole sculpture of the abdomen.

13. SUBMACULATUS Westw.

Megischus submaculatus Westw. (4), p. 230. ♀. *Stephanus s.* Schlett., p. 126, ♀.

♀. Frons arcuatè rugose; occiput anteriorly arcuately, posteriorly transversely rugose. Posterior margin of head very finely bordered. Second flagellar joint one and a half times as long as first, third as long as first and second together. Neck very finely trans-striate; semiannular entirely smooth. Mesonotum very diffusely and finely punctate; scutellum smooth, with a few marginal punctures. Mesopleuræ shining smooth above, diffusely punctate below; metapleuræ irregularly rugose, separated by a narrow but distinct sulcus from the median segment, which is very diffusely punctate, apically irregularly transrugose. Petiole trans-striate, a little shorter than rest of abdomen, with two very distinct lateral tubercles before middle; remaining segments smooth, apex of abdomen dull. Terebra longer than body, sheaths white-banded before apex. Hind coxæ with diffuse scale-like rugosities; hind femora polished, bidentate; hind tibiæ compressed to middle.

Black; head and scape red. Wings subhyaline, scarcely darker centrally.

Length 18 mm.; terebra 33 mm.

Habitat: Para, Brazil. Type in British Museum.

Very similar to *maculipennis* Westw., but differs in the almost smooth neck of pronotum, more diffuse puncturation of mesonotum and median segment, trans-striate petiole with much larger tubercles, and the subhyaline wings, not darker centrally.

14. MACULIPENNIS Westw.

Megischus maculipennis Westw. (4), p. 229, ♂. *Stephanus m.* Schlett., p. 127, ♂; Szépl., p. 533, ♀ ♂.

♀ ♂. Frons and vertex arcuate rugose; occiput regularly, laterally irregularly transrugose. Posterior margin of head simple. Second flagellar joint one and a half times as long as first; third normal. Neck very coarsely, basally more finely transrugose; semiannular polished smooth. Mesonotum coarsely and diffusely, laterally more densely and partly confluent punctate, the median row of punctures and lateral divergent impressions very distinct. Scutellum smooth, with a few conspicuous marginal punctures. Mesopleuræ above shining smooth, below finely and diffusely punctate; metapleuræ coarsely and irregularly rugose, separated by a narrow but distinct sulcus from the median segment, which is coarsely and diffusely punctate, apically transrugose. Petiole smooth, basally finely trans-striate, with a small tubercle on each side before the middle, shorter than rest of abdomen, which is subnitidulous, apically dull. Hind coxæ with diffuse coarse rugosities, only near posterior margin densely transrugose; hind femora polished smooth, bidentate; hind tibiæ longer than femora and compressed to middle.

Black; head entirely, frons and hind legs centrally ferruginous; mandibles and antennæ basally rufescent. Wings subhyaline, centrally strongly infumate.

Length 25-33 mm.; terebra 35-50 mm.

Habitat: Para, Brazil. Type of ♀ in British Museum.

Szépligetti (*l. c.*) states:—"♀. Length 25-30 mm.; terebra 35-50 mm.; sheaths white-banded before apex; posterior margin of head sharp; petiole transrugose; hind tarsi 3-jointed; otherwise as ♂. Yurimaquas, Peru, and Prov. Piauchy, Brazil.

Text-figure 4.



Hemistephanus maculipennis.

"Var. 1. ♀. Hind tibiae entirely black. La Merced, Brazil.

"Var. 2. ♀ ♂. Median segment transrugose, centrally punctate. Wings pale brown to hyaline, centrally dark marked. Only basal half of front legs more or less red. Petiole of ♀ rather lightly transrugose. Length 33 mm.; terebra 50 mm. Vilcanota, Peru."

In the type-form the smooth petiole, centrally dark wings, and sculpture of prothorax will distinguish this species from *submaculatus* Westw. and *macrurus* Schlett., both of which it resembles. The transrugose petiole of Szépligetti's specimens appears to be merely a variety.

15. RUFICEPS Cam.

Megischus ruficeps, Cameron (1), p. 420, pl. 18, fig. 9, ♀. *Stephanus capitatus* Schlett., p. 151, ♀. *Hemistephanus ruficeps* Morley (1), p. 112, ♀.

"Niger, capite rufo; alis fere hyalinis, ♀ long. 19 mm.; terebra 25 mm. *Hab.* Panama, Volcan de Chirique, 2500-4000 feet." (Cameron.)

♀. Head coarsely rugose, vertex more finely; posterior margin of head simple. Antennæ very slender, about two-thirds of length of body, scape elongate; basal flagellar joints normal. Neck coarsely, semiannular more finely trans-striate. Scutellum smooth, with large and coarse marginal punctures. Mesopleuræ aciculate, rather dull; metapleuræ rugose and dull. Median segment nitidulous, with large and diffuse punctures. Petiole irregularly but closely trans-striate, as long as remainder of abdomen. Terebra half as long again as body. Hind legs with coxæ striolate, more strongly towards apex, inner side densely pilose; femora smooth, bidentate; tibiæ and tarsi covered with dense, shining, fulvous pubescence.

Black with red head. Wings subhyaline.

Length 19-21 mm.; terebra 25-35 mm.

Habitat: Panama (Cameron); Amazon (Bates). Type in British Museum.

The present species may be best separated from *cylindricus* Westw. by the much longer terebra and by the sculpture of the pro- and meso-thorax and of the hind coxæ. It also resembles *H. wüstneii* Schlett., from which it may be known by the simple posterior margin of the head, coarser puncturation of the scutellum, and by the greater size.

In 1861, Smith described a *Fœnatopus ruficeps*, and subsequently withdrew his genus *Fœnatopus* as synonymous with *Stephanus*. On these grounds Schletterer (*l.c.*) altered the specific name to *capitatus*. More recent investigation has resulted in the original genus *Stephanus* being divided into a number of subgenera, in each of which it appears permissible to repeat a specific name; hence I restore the original name *ruficeps* given by Cameron.

16. *VADOSUS* Schlett.

Stephanus vadosus Schlett., p. 146, ♀; Roman (2), p. 11, ♀ ♂.

♀. Head irregularly rugose, frons finely, occiput more coarsely and transversely in front; posterior margin of head simple. Second flagellar joint barely twice as long as first; third longer than first and second together. Neck feebly trans-rugose, semiannular polished smooth above, obsoletely rugose below. Mesonotum with irregular to transverse superficial rugosity, central row of punctures distinct, lateral ones indistinct. Scutellum polished smooth, marginally punctate. Mesopleuræ shining above, dull beneath; metapleuræ irregularly rugose, not separated from median segment, which is smooth shining, very diffusely punctate, with distinct marginal sulci. Petiole very finely trans-striate, little shorter than rest of abdomen; second segment basally finely rugose, apical third longitudinally striate, fourth longitudinally divergently striate. Terebra longer than

body, white-banded before apex. Hind legs with coxæ finely trans-striate between coarse ridges; femora smooth, bidentate; tibiæ compressed about to middle.

Black; mandibles and antennæ basally and hind metatarsus ferruginous; anterior legs brown, with a tendency towards rufescent. Wings entirely hyaline.

Length 12-20 mm.; terebra 15-24 mm.

♂. Differs from ♀ in having 3rd abdominal segment usually distinctly elongate, 4th transverse or rarely quadrate. Length 8-11.5 mm.

Habitat: Brazil, Manaos, Rio Antaz. Type in National Museum, Budapest.

This species appears to be one of the most frequent in the Amazon region, yet, until 1914, it had been only once taken, and the ♂ was not known. It comes close to *H. cylindricus* Westw., from which it may be distinguished chiefly by the finer sculpture of pro- and meso-thorax, longer terebra, and entirely hyaline wings. From *H. limpidipennis* Schlett., *wüstneii* Schlett., and *tener* Schlett., all of which it resembles, it is at once separated by the simple posterior margin of the head.

17. CYLINDRICUS Westw.

Megischus cylindricus Westw. (4), p. 230. *Stephanus cylindricus* Schlett., p. 144; Enderlein (4), p. 306, ♀; Roman (2), p. 10, ♀ ♂.

♀. Head entirely finely and moderately irregularly rugose, more transversely near posterior ocelli; three anterior frontal tubercles very prominent; posterior margin of head simple. Second flagellar joint fully one and a half times as long as first; third longer than first and second together. Neck coarsely rugose, anteriorly transversely, posteriorly more irregularly; semiannular smooth above, laterally posteriorly obliquely rugose. Mesonotum rather coarsely rugose-punctate, a small central smooth space with indistinct longitudinal row of punctures, the lateral ones more distinct. Scutellum polished, with diffuse marginal punctures. Mesopleuræ shining smooth above, dull and diffusely punctate beneath; metapleuræ finely and diffusely punctate in front, irregularly rugose behind. Median segment strongly shining, very finely and diffusely punctate, marginal sulci obsolete. Petiole basally irregularly rugose, remainder distinctly trans-striate, a little shorter than rest of abdomen, also slightly shorter than the hind coxæ, trochanters, and femora together; second segment basally subrugose, third basally transversely, apically longitudinally striate, rest smooth, with a few dull spots due to microscopic sculpture. Terebra as long as body, sheaths white-banded before apex. Hind legs with coxæ finely striate between coarse rugosities; femora smooth, bidentate; tibiæ compressed to middle.

Black; head entirely, mandibles and antennæ basally ferruginous, hind tarsi badious. Wings slightly infusate.

Length 13-15 mm.

♂. Differs from ♀ in the stouter petiole, third segment not, or scarcely longer than its basal width, fourth strongly transverse (subelongate in ♀), its extreme base longitudinally striate. Length 19–14·5 mm.

Habitat: Rio Autaz, Apipica, Cururuzinho, Brazil; Peru, Dept. Chanchamayo.

This species seems by no means plentiful. It resembles *H. vadosus* Schlett., from which it may be known by the coarser sculpture of pro- and meso-thorax, shorter terebra, and colour of head. The simple posterior margin of the head and longer third flagellar joint will separate it from *H. limpidipennis*, *tener*, and *wüstneii* Schlett.

NEOSTEPHANUS.

Kieffer (1), p. 4, gen. n.

Smith's genus *Fœnatopus* was defined as having the cubital and discoidal cells wanting, or only indicated by indistinct nervures.

Kieffer (*l.c.*) subdivided this genus, placing in a new subgenus, *Neostephanus*, those species in which the apical margin of the external submedian cell is marked by a transverse nervure, while retaining in *Fœnatopus* those in which this nervure is absent.

The species of the subgenus *Neostephanus* appear to be confined to Central and South Africa and Madagascar, to which latter island the type-species, *N. alluaudi* Kieff., belongs.

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1. ALLUAUDI Kieff.

Neostephanus alluaudi Kieffer (1), p. 1, ♀.

♀. Face and frons irregularly rugose, becoming arcuate towards the frontal tubercles, the space between which is not

impressed; vertex with four transcarinae; occiput finely and densely trans-striate. Posterior margin of head simple. Second flagellar joint about one and a half times as long as first; third as long as first and second together. Neck transcarinate, semi-annular finely and densely trans-striate, posterior margin smooth and shining. Mesonotum irregularly rugose, with three longitudinal impressions; scutellum shining smooth, with a few marginal punctures, the lobes separated by rows of broad punctures. Median segment finely shagreened, shining and diffusely punctate. Petiole finely trans-striate, longer than rest of abdomen. Terebra shorter than body, sheaths rufescent, apically black. Hind legs with coxae as long as trochanters and femora together, strongly trans-rugose; femora very finely shagreened, tridentate; tibiae constricted beyond the middle, covered internally with dense erect red pubescence; tarsi densely pubescent beneath, metatarsus a little longer than the following joints together.

Black; head except apices of mandibles, basal third of antennae, the front coxae and legs, inflated part of hind tibiae and all tarsi red; apical third of antennae and the intermediate legs brown. Wings subhyaline.

Length 15 mm.; abdomen 9 mm.; terebra 12 mm.

Habitat: Madagascar, south of the Bay of Antongil and St. Marie de Madagascar. Three specimens taken by M. Ch. Alluaud.

(? Gold Coast, N. Territories, Yahi. Dr. J. J. Simpson, xi. 1916).

It is unfortunate that the type of the genus is the only one yet known with tridentate hind femora.

2. *INSIGNIS* Schlett.

Stephanus insignis Schlett., p. 100, ♀.

♀. Head rather coarsely and irregularly rugose throughout. Temples subrugose and dull, except a raised smooth and shining space near the ocelli. Posterior margin of head simple. Cheeks longer than scape. Second flagellar joint twice as long as first; third shorter than first and second together. Neck rather coarsely irregularly to transversely rugose; semiannular coarsely irregularly rugose. Mesonotum rather coarsely and irregularly punctat-rugose. Central section of scutellum anteriorly dull; behind this a small smooth polished space, laterally diffusely punctate, lateral lobes rather coarsely and densely punctate. Mesopleurae polished smooth above, laterally rugose with rather dense indistinct puncturation; metapleuræ coarsely and irregularly rugose, separated by a smooth shining sulcus from the median segment, which is somewhat densely punctate. Petiole as long as, or slightly longer than rest of abdomen, trans-striate, remainder of abdomen smooth and shining. Terebra scarcely as long as body, spicula red, the sheaths ferruginous, apically black. Hind legs with coxae and femora much incrassate, former coarsely and irregularly rugose, more transversely towards apex; femora finely

rugose-punctate and dull, bidentate; tibiæ constricted to beyond middle.

Black, with a tendency towards red; cheeks pale marked, mandibles and antennæ basally and frontal tubercles rufescent, a curved red line round anterior ocellus and all legs more or less red. Wings entirely hyaline.

Length 14 mm.

Habitat: South Africa. Type in Nat. Hist. Mus., Berlin.

This species may be best known by the rugose and dull temples, the dense and irregular sculpture of pro- and meso-notum, dense puncturation of scutellum, and median segment and red sheaths of terebra.

3. GLOBICEPS Enderl.

Stephanus globiceps Enderl. (1), p. 200, ♀.

♀. Head large and globose, its longitudinal axis very elongate, temples and occiput very long and convex. Frons arcuate punctate; all five frontal tubercles distinct; vertex coarsely transrugose; occiput finely arcuate rugose, with distinct longitudinal impression; posterior margin of head sharply bordered. Basal flagellar joints normal. Neck elongate, smooth, laterally obliquely rugose; semiannular trans-striate, posterior margin smooth. Mesonotum strongly transrugose and punctate. Scutellum centrally polished, laterally strongly punctate. Mesopleuræ pubescent, smooth, apical half diffusely punctate; metapleuræ alutaceous and dull in front, coarsely punctate behind, separated from median segment by a row of punctures. Median segment punctate, apically more densely. Abdomen wanting in the unique specimen. Hind coxæ finely trans-striate, their femora elongate, tarsi three-jointed.

Black; head ferruginous yellow; apex of mandibles and a transverse band between eyes black; five basal antennal joints, anterior legs, apices of hind femora with their tibiæ and tarsi ferruginous. Wings hyaline, very faintly infuscate; stigma and nervures dark brown.

Length circa 14 mm., the proportions of the remaining parts being about as in *N. insignis* Schlett.

Habitat: Johann Albrechtshöhe, N. Cameroons. March 1896; L. Conradt.

The shape, sculpture, and colour of head appear distinctive.

4. CAMERUNUS Enderl.

Neostephanus camerunus Enderl. (4), p. 299, ♀ ♂.

♀ ♂. Head medium; frons coarsely obliquely rugose, more transversely in front, almost circularly between the tubercles; vertex strongly, occiput less strongly arcuate rugose, with distinct posterior median impression. Posterior margin of head bordered. Basal flagellar joints normal. Neck short, coarsely obliquely rugose; semiannular smooth, posterior margin polished. Meso-

notum apically punctato-rugose, dorsally alutaceous between deep but diffuse punctures; scutellum polished smooth, laterally diffusely punctate, a row of about 10 subquadrate punctures on each side between it and the dorsum. Mesopleuræ with small and diffuse punctures and microscopic shagreening; metapleuræ widely reticulate, smooth above, separated from median segment by a carina, which passes into a row of punctures above in front. Median segment with diffuse, sharply-defined punctures, anterior lateral angles nearly smooth, apex rugose-punctate round the insertion of petiole. Petiole slender, finely trans-aciculate, extreme apex polished, longer than rest of abdomen in ♂, shorter in ♀; second segment basally rugose, remainder smooth. Terebra in ♀ twice as long as body, ferruginous brown, sheaths brown, broadly white-banded before apex. Hind coxæ rather slender, finely reticulate outside, trans-aciculate inside; femora bidentate. Radius in fore wing sharply geniculate and extending nearly to margin of wing.

Black; head—except mandibles apically, vertex, and space between frontal tubercles,—five basal antennal joints, all trochanters, tibiæ and tarsi, apices of hind femora, petiole laterally, apical segment dorsally only in ♀, entirely in ♂, and the male genitalia ferruginous; anterior femora brown. Wings hyaline, apically slightly infusate; stigma and nervures brown.

Length, ♀, 18½ mm.; abdomen 13 mm.; petiole 5¾ mm.; fore wing 11 mm.; terebra 37 mm. ♂, 13 mm.; abdomen 8 mm.; petiole 5 mm.; fore wing 11 mm.

Habitat: Barombi, Cameroons. 1 ♀, 1 ♂; L. Conradt.

5. CRASSIPES Bischoff.

Neostephanus crassipes Bischoff, p. 329, ♀.

♀. Frons subarcuate rugose; vertex transrugose; occiput punctate-rugose with central impression; posterior margin of head bordered. Antennæ normal. Prothorax smooth, laterally obliquely rugose; mesonotum irregularly punctate rugose; scutellum smooth, laterally strongly punctate. Mesopleuræ diffusely punctate; metapleuræ coriaceous in front, rather closely punctate behind, separated by a row of strong punctures from the median segment, which is coarsely, densely, and partly confluent punctate. (Details of petiole wanting.) Terebra much longer than body, sheaths black, white-banded before apex.

Black to black-brown; face below anterior tubercles, temples, cheeks, occiput laterally, four basal antennal joints, second segment laterally, third basally and ventrally, last segment entirely, hind trochanters, apices of hind femora, all tibiæ and tarsi more or less yellow-brown.

Length 19 mm.; terebra 27 mm.

Habitat: Kasindi, north of Lake Albert Edward. Jan. 1908.

Details as to the sculpture etc. of abdomen and as to hind legs

are wanting in the original description, and the unique specimen of *N. globiceps* was without abdomen, while the only details as to the hind legs are that the coxæ are trans-striate and the femora elongate.

Apparently very like *N. globiceps* Enderl., but frons less arcuately rugose, space between tubercles trans-striate, sculpture of occiput coarser and the impression less deep, puncturation of metapleuræ and median segment confluent.

6. ALBOMACULATUS Cam.

Fœnatopus albomaculatus Cam. (7), p. 18, ♀.

♀. Frons closely and regularly reticulated; vertex dull, irregularly reticulate, with a transcarina behind tubercles; occiput irregularly closely striate, with an indistinct longitudinal impression. Second and third flagellar joints of equal length. Neck irregularly trans-striate, semiannular lightly reticulate; mesonotum basally reticulate, laterally obliquely striate; scutellum smooth and dull. Mesopleuræ smooth; metapleuræ finely reticulate. Median segment with round, clearly separated punctures, and microscopic sculpture. Petiole as long as thorax; terebra as long as body, sheaths black. Hind coxæ dull, coarsely aciculate, basally reticulate, apically striate; hind femora with a blunt, rounded basal tooth and two other long-pointed teeth.

Black; clypeus and a large spot on malar region whitish testaceous; mandibles basally and the carina on vertex rufescent; base and apex of petiole and a transverse spot at base of second segment white. Wings hyaline; stigma and nervures black.

Length 12 mm.; terebra 12 mm.

Habitat: Sebakwe, S. Rhodesia.

7. PENTHERI Kieff.

Neostephanus pentheri Kieffer (2), p. 101; Morley (1), p. 111, ♂.

♂. Frons dull, reticulate; vertex with two transcarinæ; occiput finely rugose. Antennæ normal. Prothorax trans-rugose; mesonotum very short and transverse, finely shagreened, as is also the scutellum. Mesopleuræ closely granulose and dull; metapleuræ trans-striate and shining, separated by a carina from the median segment, which is as long as broad, reticulate and diffusely punctate. Petiole finely trans-striate, as long as remaining segments. Hind legs with coxæ transrugose; femora bidentate; tibiæ compressed in basal half; tarsi five-jointed, metatarsus longer than the four following joints.

Red-brown; mandibles black, antennæ basally pale, base and apex of petiole and a basal spot on each side of third segment yellow. Wings subhyaline; stigma black, basally white.

Length 10 mm.

Habitat: Zeruia, S. Africa. Taken by Dr. Penther in November.

The British Museum has a specimen taken in Angola in 1878 by J. J. Monteiro.

FÆNATOPUS Smith.

This subgenus was erected in 1860 by Smith, to include all those species of *Stephanus* having reduced venation, but was restricted by Enderlein (Zool. Anz. xxviii. 1906) to those having only the basal cells complete, and a portion of the median nervure beyond the transverse nervure representing the upper boundary of the submedian cell. In *Diastephanus* this part of the median nervure is either entirely wanting or reduced to a mere stump. Although these subdivisions of the Stephanidæ may be said to be purely artificial, yet, since some of them appear to be confined to certain regions, and no transition forms are known, they seem to be founded on permanent differences, and are of the highest value in identifying the numerous species.

The number of teeth on the hind femora and the length of the petiole as compared with the rest of the abdomen, and, in the ♀, the length and colour of the terebra and its sheaths, are among the best characters for differentiation.

Table of Species.

♀.

- | | | |
|--------|---|--|
| (25.) | 1. Hind femora bidentate. | |
| (16.) | 2. Petiole distinctly longer or shorter than rest of abdomen. | |
| (12.) | 3. Petiole distinctly longer than rest of abdomen. | |
| (5.) | 4. Sheaths of terebra black; head arcuate striate | 1. <i>ocellatus</i> Elliott. |
| (4.) | 5. Sheaths of terebra pale-banded before apex. | |
| (7.) | 6. Sheaths of terebra white-banded | 2. <i>indicus</i> Westw. |
| (6.) | 7. Sheaths of terebra yellow-banded. | |
| (9.) | 8. Terebra only as long as body | 3. <i>sumbanus</i> Enderl. |
| (8.) | 9. Terebra much longer than body. | |
| (11.) | 10. Mesopleuræ closely punctate; 2nd segment basally smooth and shining | 4. <i>formosanus</i> Enderl. |
| (10.) | 11. Mesopleuræ very diffusely punctate; 2nd segment basally granulate and dull | 5. <i>sulcatcollis</i> Enderl. |
| (3.) | 12. Petiole distinctly shorter than rest of abdomen. | |
| (14.) | 13. Terebral sheaths ferruginous, broadly yellow-banded, apex black. Head pale marked; middle tibiæ and hind metatarsus white | 6. <i>annulitarsis</i> Enderl. |
| (13.) | 14. Terebral sheaths not yellow-banded; vertex transrugose. | |
| (15.) | 14a. Sheaths ferruginous, apex black; mesonotum irregularly coarsely rugose; scutellum smooth and shining; metapleuræ and median segment alutaceous, separated by a carina. | [Schultz.
7. <i>fernandopoensis</i> |
| (14a.) | 15. Sheaths brown, apex black; mesonotum and scutellum densely rugose-punctate, latter with central smooth space; metapleuræ and median segment densely superficially punctate, not separated | 8. <i>schlettereri</i> Enderl. |
| (2.) | 16. Petiole about as long as abdomen. | |
| (18.) | 17. Pronotum very short, densely rugose-punctate; terebra shorter than body, sheaths yellow-brown | 9. <i>brevicollis</i> Enderl. |
| (17.) | 18. Pronotum not very short. | |
| (22.) | 19. Pronotum normal. | |

- (21.) 20. Neck oblique rugose, semiannular rugose-punctate; mesopleuræ punctate; terebra as long as body, sheaths red-brown, apex black 10. *conradti* Enderl.
- (20.) 21. Neck trans-striate, semiannular and mesopleuræ smooth and shining; terebra shorter than body, black, white-banded before apex [Schlett. 11. *lacteipennis*
- (19.) 22. Pronotum very elongate.
- (24.) 23. Neck trans-striate, semiannular and mesopleuræ smooth. 12. *longicollis* Cam.
- (23.) 24. Pronotum transrugose throughout. Rufo-piceous, abdomen white-marked [Semenov. 13. *turcomanorum*
- (1.) 25. Hind femora tridentate.
- (29.) 26. Neck of pronotum very elongate.
- (28.) 27. Neck of prothorax alutaceous; hind femoral teeth black. 14. *simpsoni* Kieff.
- (27.) 28. Neck of pronotum finely striate; middle and apical hind femoral teeth white..... 15. *variidens* Elliott.
- (26.) 29. Neck of pronotum not elongate.
- (31.) 30. Neck of pronotum very short; petiole shorter than rest of abdomen; terebra as long as body 16. *arcuatus* Kieff.
- (30.) 31. Pronotum of ordinary length.
- (35.) 32. Frons striate, but not arcuately.
- (34.) 33. Frons finely trans-striate, occiput alutaceous; petiole shorter than rest of abdomen; terebra shorter than body. 17. *natalicus* Westw.
- (33.) 34. Frons rugosely trans-striate, occiput smooth; petiole longer than rest of body; terebra $1\frac{1}{2}$ times as long as body. 18. *longicauda* Elliott.
- (32.) 35. Frons arcuate rugose.
- (37.) 36. Frons sparsely, almost granulately rugose; pronotum strongly trans-striate; legs rufescent; basal and central femoral teeth white, the apical black..... 19. *rugiceps* Elliott.
- (36.) 37. Frons moderately arcuate striate to rugose; vertex and occiput trans-striate.
- (41.) 38. Neck of prothorax smooth.
- (40.) 39. Pronotum entirely smooth; terebra shorter than body, black. 20. *piceicornis* Cam.
- (39.) 40. Rest of pronotum trans-striate; terebra half as long again as body, white-banded 21. *iridipennis* Elliott.
- (38.) 41. Neck of pronotum striate or rugose.
- (43.) 42. Pronotum strongly transrugose; lateral lobes of scutellum closely punctate 22. *punctatus* Elliott.
- (42.) 43. Neck of pronotum more or less coarsely obliquely striate, remainder alutaceous.
- (45.) 44. Metapleuræ and median segment confluent, coarsely and superficially punctate. Terebra as long as body, ferruginous. 23. *togoensis* Stadlm.
- (44.) 45. Metapleuræ and median segment separated by a line of punctures, diffusely punctate; terebra shorter than body, black 24. *claripennis* Elliott.

♂.

- (6.) 1. Hind femora bidentate.
- (3.) 2. Scutellum depressed, coarsely punctate; petiole shorter than rest of abdomen; 2nd segment basally longitudinally striate. Black; head bright rufo-testaceous... 25. *aratifrons* Enderl.
- (2.) 3. Scutellum not depressed, only laterally punctate; petiole longer than rest of abdomen; 2nd segment basally smooth.

- (5.) 4. Frons and occiput finely transrugose; pronotum transrugose throughout; 2nd segment apically dull. Black; head yellow, vertex and occiput black 4. *formosanus* Enderl.
- (4.) 5. Frons coriaceo-rugose, vertex and occiput transrugose; neck elongate, transrugose, semiannular smooth; 2nd segment basally smooth and shining. Black; head red, pale marked. 2. *indicus* Westw.
- (1.) 6. Hind femora tridentate.
- (10.) 7. Anterior frontal tubercles normal, larger than the posterior.
- (9.) 8. Frons transrugose, occiput alutaceous; pronotum trans-striate; petiole longer than rest of abdomen. Rufotestaceous, median segment apically black 16. *natalicus* Westw.
- (8.) 9. Frons arcuate rugose, occiput finely transrugose and impressed; neck oblique striate; semiannular alutaceo-punctate; petiole as long as, or slightly shorter than rest of abdomen. Black; head, thorax, and legs ferruginous. 22. *togoensis* Stadlm.
- (7.) 10. Anterior frontal tubercles smaller than the posterior; vertex arcuate striate; mesonotum irregularly striate. Black; face, outer orbits, vertex, prothorax except central black line, meso- and meta-pleuræ, and anterior legs testaceous. 26. *flavicollis* Cam.

1. OCELLATUS Elliott.

Fœnatopus ocellatus Elliott (2), p. 131, ♀.

♀. Head arcuate striate, occiput more finely; three strong carinæ between the posterior ocelli; posterior margin of head bordered; second flagellar joint one and a half times as long as first; third as long as first and second together. Neck elongate, trans-striate, remainder of pronotum subglabrous; mesonotum coarsely punctate; pro- and meso-pleuræ glabrous, metapleuræ and median segment cribrate punctate. Petiole trans-striate, longer than rest of abdomen; terebra shorter than body, black. Hind legs with coxæ trans-striate; femora smooth, bidentate; tibiæ compressed to middle.

Black; head and base of antennæ rufescent, ocellar region pale, and the ocelli deep, shining black; basal third of middle tibiæ and basal half of their metatarsi white. Wings hyaline, stigma yellow-brown.

Length 13 mm.; abdomen 8 mm.; petiole $4\frac{1}{2}$ mm.; terebra 10 mm.

Habitat: Mount Matang, Sarawak. 18.i.1914; G. E. Bryant.

The deep black ocelli are strikingly conspicuous against the pale rufescent background.

2. INDICUS Westw.

Stephanus indicus Westw. (2), p. 588; (3), p. 277; Schlett., p. 125, ♀ ♂. *Megischus indicus* Westw. (4). *Fœnatopus ruficeps* Smith (2), p. 58, ♀. *Fœnatopus indicus* Enderl. (3), p. 290, ♀, (4), p. 297; Morley (1), p. 36, ♀ ♂.

♀. Frons finely coriaceo-rugose; occiput finely trans-striate, with a shallow central longitudinal impression. Posterior margin of head bordered. Second flagellar joint one and a half times as

long as first; third nearly as long as first and second together. Neck elongate, very slender and finely transrugose above; semiannular shining smooth, laterally subrugose. Mesonotum lightly transrugose. Scutellum smooth and shining, with a few marginal punctures. Mesopleuræ polished smooth above, otherwise diffusely punctate; metapleuræ and median segment superficially cribrate punctate, not separated by any sulcus. Petiole slightly longer than rest of abdomen, rather shorter than hind coxæ, trochanters, and femora together, very finely trans-striate, remaining segments entirely smooth. Terebra slightly longer than body, sheaths white-banded before apex. Hind legs with coxæ slender, finely transrugose; femora dull, bidentate; tibiæ longer than femora, compressed to beyond middle.

Black; head red, frons and temples pale marked, anterior legs more or less brown, intermediate tibiæ and tarsi white-marked. Wings hyaline.

♂. Similar, but more coarsely sculptured, especially on median segment.

Length 11–14 mm.

Habitat: East India, Ceylon, Malabar, Philippines, Borneo, Sunbava, Celebes. Sumatra, a specimen measuring 19 mm. recorded by Dr. Dohrn.

Enderlein (*l.c.*) records specimens of this species, taken by Dr. Dohrn in Sumatra, having the impression on occiput more distinct, neck of pronotum more coarsely transrugose, semiannular transaciculate in front, basal two-thirds of second abdominal segment polished smooth, remainder of abdomen dull, and hind femoral teeth black. Length 19–20.5; terebra 21–23 mm. This may prove to be a distinct species.

"Var. (?) ♀. Face finely alutaceo-rugose. Certainly a different species." Szépligetti, Termés. Fü. xxv. p. 531 (1902).

Habitat: Borneo.

3. SUMBANUS Enderl.

Fenatopus indicus var. *sumbana* Enderl. (4), p. 298; *F. sumbanus* Enderl. (3), p. 209, ♀.

♀. Frons finely coriaceo-rugose, occiput finely trans-striate; posterior margin of head slightly bordered. Second flagellar joint about one and a half times as long as first; third nearly as long as first and second together. Neck deeply transrugose, laterally finely and closely trans-striate, semiannular smooth above, without trace of sculpture, laterally finely and closely trans-striate, posterior angles strongly transrugose. Mesonotum irregularly to transversely rugose. Scutellum smooth, laterally finely aciculate with marginal punctures. Mesopleuræ rather smooth, diffusely punctate, with a central rugose and closely trans-striate space. Metapleuræ and median segment with large cribrate punctures. Petiole very finely and closely trans-striate, longer than rest of abdomen; second segment basally rugose,

centrally smooth, apically microscopically sculptured and dull. Terebra as long as body, sheaths black, with yellowish subapical band. Hind coxæ trans-striate; hind femora bidentate.

Black; head flavo-ferruginous, frons and vertex darker; basal half of second segment rufescent; anterior coxæ and legs, hind tibiæ and tarsi ferruginous, femoral teeth rufescent. Wings hyaline, stigma very long and narrowish, brown; nervures dark brown.

Length $16\frac{1}{2}$ mm.; petiole 5.4 mm.; terebra $16\frac{1}{2}$ mm.; fore wing 9 mm.

Habitat: Sumba, Malay Archipelago. 1 ♀; Grelak. Type at Stettin.

Differs from *F. indicus* in the sculpture of prothorax, shorter terebra, and colour. The femoral teeth are rufescent, whereas in *F. indicus* they are black (Enderlein), or white (Schlett.); the black apex of terebral sheaths is more than half as broad as the pale subapical band in *sumbanus*, but very much less in *indicus*.

4. FORMOSANUS Enderl.

Æenatopus formosanus Enderl. (3), p. 207, ♀ ♂.

♀ ♂. Frons rather finely and irregularly transrugose, the ridges outwardly forked; occiput more finely rugose, with indistinct longitudinal median impression. Pronotum transrugose, more densely towards base, and intermixed with coarse punctures, lateral margins smooth, a broad posterior margin polished smooth and in front of it two roundish lateral spaces very finely and densely striate, having a velvety appearance, posterior angles strongly rugose. Scutellum polished smooth, laterally sparsely punctate. Mesopleuræ rather closely punctate, posterior margin very finely punctate and sparsely yellow pubescent. Petiole finely and densely trans-striate; second segment basally smooth and shining, apical half dull. Terebra in ♀ much longer than body, sheaths black, with a broad yellow band before apex. No details as to the hind legs are given.

Black; in ♀ frons black-brown, with three longitudinal rufo-testaceous lines, vertex and occiput black, remainder of head ferruginous yellow; in ♂ head light yellow, vertex and occiput black. Antennæ black, two basal joints yellow, third brown. Anterior legs from femora red-brown, tibiæ and tarsi in ♂ paler. Hind tarsi, sometimes also hind tibiæ, dark red-brown. Wings hyaline, stigma pale brown, nervures black-brown, apical nervure of median cell more or less pale.

Length, ♀, 12.4–17.75 mm.; petiole 4.5–7 mm.; terebra 16.5–24.5 mm.; fore wing 7.5–10.75 mm. ♂, $10\frac{1}{2}$ – $16\frac{1}{2}$ mm.; petiole 4.6–6 mm.; fore wing 5.3–9 mm.

Habitat: Formosa, many localities, by H. Sauter, 1909–12; 18 ♀ ♀, 12 ♂ ♂. Co-types in Dahlen and Stettin Museums.

One large ♀, taken by H. Sauter in Hankau in 1912, has the nervure bounding the median cell pigmented throughout. Length

21.5 mm.; petiole 7 mm.; terebra 29 mm.; fore wing 12.6 mm. Enderlein states that the development and pigmentation of the nervure mentioned varies with the size of the individual, being shortest and palest in the smallest.

5. *SULCATICOLLIS* Enderl.

Fœnatopus indicus var. *sulcaticollis* Enderl. (4), p. 298. *F. sulcaticollis* Enderl. (3), p. 210, ♀.

♀. Frons finely coriaceous-rugose; occiput finely trans-striate, temples smooth polished; posterior margin of head slightly bordered. Second flagellar joint about one and a half times as long as first; third nearly as long as first and second together. Pronotum not rugose, but finely and densely trans-striate throughout, except the rugose posterior lateral angles and the smooth posterior margin. Mesonotum transrugose; scutellum smooth, with diffuse coarse marginal punctures. Mesopleuræ smooth, very diffusely punctate; metapleuræ and median segment eribrate punctate. Petiole finely and densely, but unusually superficially trans-striate, slightly longer than rest of abdomen; second segment with basal sixth granulate, apical half dull, central part smooth and shining. Terebra longer than body, sheaths black-brown with broad yellow subapical band. Hind coxæ more strongly trans-striate than the petiole; hind femora bidentate.

Black; head and three basal antennal joints ferruginous; apices of tergites 2-7 brownish; anterior coxæ dark ferruginous, anterior tarsi paler, hind tarsi black-brown. Wings hyaline, stigma very narrow, brown; nervures dark brown.

Length 18 mm.; petiole $6\frac{1}{2}$ mm.; terebra 23 mm.; fore wing $9\frac{1}{2}$ mm.

Habitat: Sumatra (Dr. Dohrn). Type in Stettin Museum.

From *F. indicus* Westw. and *F. sumbanus* Enderl. it differs in sculpture of pronotum and petiole as well as in colour, and from the latter also in the longer terebra.

6. *ANNULITARSIS* Enderl.

Fœnatopus annulitarsis Enderl. (3), p. 206, ♀.

♀. Frons, vertex, and occiput arcuate rugose. Pronotum strongly transrugose, laterally finely aciculate, posteriorly longitudinally striate; scutellum coarsely and densely punctate, posterior margin finely aciculate. Mesopleuræ smooth, closely punctate, posterior margin finely trans-striate, upper half yellow pubescent. Petiole finely and densely trans-striate; second segment smooth, basally rugose, remainder of abdomen dull. Terebra shorter than body, sheaths ferruginous, with indistinct yellow-brown band before the black apex. Basal half of hind coxæ transrugose; hind femora bidentate.

Black; face, cheeks, and temples ferruginous yellow; hind legs partly dark ferruginous; middle tibiæ and metatarsus

basally, hind metatarsus entirely whitish yellow. Teeth on hind femora black. Wings hyaline, stigma pale brown.

Length 9-14½ mm.; petiole 2.4-3.6 mm.; terebra 7.8-11.6 mm.; fore wing 5.7-7.8 mm.

Habitat: Taihorin, Kankau, Hoozan, Formosa. 1910-12; H. Sauter. Co-types in Dahlen and Stettin Museums.

7. FERNANDOPOENSIS Schultz.

Fenatopus fernandopoensis Schultz (1), p. 273, ♀.

♀. Frons finely and densely arcuate rugose, dull, with subobsolete longitudinal carina; vertex coarsely transrugose; occiput finely and irregularly rugose; cheeks finely and sparsely punctate. Posterior margin of head finely bordered. Basal flagellar joints normal. Pronotum alutaceo-rugose, extreme posterior margin polished smooth, laterally and apically diffusely punctate. Mesonotum irregularly and coarsely transrugose; scutellum centrally smooth and shining, laterally finely punctate and dull. Mesopleuræ with posterior larger half closely punctate. Metapleuræ and median segment finely alutaceo-punctate, latter discally diffusely and coarsely punctate, separated by a carina. Petiole finely and densely trans-striate, shorter than rest of abdomen. Terebra shorter than body, spicula and sheaths ferruginous, latter apically black.

Black; mandibles except apex, face and cheeks rufo-testaceous; ferruginous are five basal antennal joints, anterior legs (coxæ, trochanters, and femora nigrescent), hind coxæ apically, hind trochanters chiefly, basal half and apex of hind tibiæ and the tarsi, basal band on second and third abdominal segments, apex of third tergite obscurely and apex of last sternite. All the last tarsal joints and the claws black. Wings hyaline.

Length 9 mm.; terebra 7 mm.; fore wing 5 mm.

Habitat: Fernando Po. Type in coll. W. A. Schultz.

8. SCHLETTERERI Enderl.

Stephanus schlettereri Enderl. (1), p. 201, ♀. *Fenatopus schl.* (2), p. 474.

♀. Frons transrugose, with indistinct central carina; vertex coarsely transrugose; occiput irregularly and finely rugose-punctate; temples smooth, subrugose near the eyes. Posterior margin of head sharply bordered. Neck almost smooth; semi-annular polished smooth, laterally punctate. Mesonotum and scutellum densely rugose-punctate, latter with a small smooth central space. Metanotum not longitudinally striate. Mesopleuræ smooth, diffusely and superficially punctate; metapleuræ and median segment not separated, densely and superficially punctate. Petiole finely trans-striate, shorter than remainder of abdomen. Terebra rather shorter than body, sheaths yellow-brown, apically black. Hind coxæ finely trans-striate.

Black; mandibles except apex, basal half of antennæ, a streak on temples along eyes, the tegulæ, tibiæ and tarsi yellow. Wings colourless hyaline.

Length 10–11 mm.

Habitat: Johann Albrechtshöhe, N. Cameroons. L. Conradt; 1895–96.

Differs from *F. brevicollis* Enderl. in the formation of the propleuræ, reticulate rugose face, longer and smoother pronotum, and shorter petiole.

9. BREVICOLLIS Enderl.

Stephanus brevicollis Enderl. (1), p. 201, ♀. *Fœnatopus b.* (2), p. 474.

♀. Head densely granulate rugose; vertex transrugose; occiput densely punctate rugose. Posterior margin of head sharply bordered. Second flagellar joint a little longer than first; third and fourth as long as scape and about as long as first and second together. Pronotum short, densely punctate rugose; mesonotum and scutellum densely punctate, latter without any central smooth space; metanotum finely transrugose. Propleuræ separated from prothorax by a distinct acute-angled sulcus, produced into free-standing edges, which, seen laterally, appear like two sharp points. Mesopleuræ above smooth and shining, lower half punctate; metapleuræ and median segment separated only by a smoother streak, and both closely punctate. Petiole extremely finely trans-striate, as long as rest of abdomen. Terebra rather shorter than body; the spicula and sheaths, except black apex, yellow-brown. Hind coxæ finely trans-striate.

Black; mandibles except apex, three basal antennal joints, tegulæ, anterior tibiæ and all tarsi yellow-brown. Wings hyaline.

Length 7–10 mm.

Habitat: Bismarcksburg, Togo. L. Conradt; 1893.

This species appears to differ from all others in the peculiar formation of the propleuræ. From *F. schlettereri* Enderl. it further differs in the shorter prothorax and coarser sculpture of pro- and meso-notum.

10. CONRADTI Enderl.

Stephanus conradti Enderl. (1), p. 202, ♀. *Fœnatopus c.* (2), p. 474.

♀. Frons very densely arcuately longitudinally rugose; vertex with three or four coarse ridges; occiput densely irregularly rugose, with subobsolete central channel. Temples subrugose near the eyes. Posterior margin of head slightly bordered. Basal flagellar joints normal, third slightly shorter than fourth and as long as scape. Neck obliquely rugose, remainder diffusely

punctate. Mesonotum indistinctly transrugose; scutellum nitidulous, with fine and diffuse small punctures. Metanotum relatively elongate, sharply longitudinally striate. Propleuræ separated from pronotum by a narrow sulcus; mesopleuræ rugose-punctate; metapleuræ rugose, apically trans-striate below, sparsely aciculate above. Median segment not very closely punctate, separated from the metapleuræ by a shining, curvate impression. Petiole finely striate, about as long as rest of abdomen. Terebra slightly shorter than body, sheaths red-brown, apically black. Hind coxæ finely trans-striate.

Black; mandibles basally, six basal antennal joints, anterior legs, apices of hind femora, basal half of hind tibiæ and hind tarsi red-brown or chestnut. Wings hyaline, nervures brown.

Length 15 mm.

Habitat: Bismarcksburg, Togo. L. Conradt; March 1893.

11. LACTEIPENNIS Schlett.

Stephanus lacteipennis Schlett., p. 119, ♀.

♀. Frons rather finely and arcuately punctato-rugose; vertex arcuately rugose, occiput gradually more irregularly. Posterior margin of head simple. Basal flagellar joints normal. Neck finely but distinctly trans-striate; semiannular smooth and shining, apically and laterally finely trans-striate. Mesonotum rather coarsely transversely punctato-rugose. Scutellum with larger section smooth, lateral lobes diffusely punctate. Mesopleuræ smooth and shining, rugoso-punctate in front; metapleuræ and median segment very coarsely cribrate punctate, separated by an indistinct sulcus. Petiole finely trans-striate, about as long as remainder of abdomen and distinctly shorter than the hind coxæ, trochanters, and femora together; second segment basally finely rugose, rest of abdomen dull. Terebra slightly shorter than body, sheaths black, white-banded before apex. Hind legs with coxæ distinctly trans-striate; femora anteriorly shining smooth, posteriorly finely trans-striate and rather dull, bidentate; tibiæ not longer than femora, compressed to beyond middle.

Black; head, mandibles basally, and scape ferruginous; a pale streak from cheeks along eyes; anterior legs chestnut-brown, their joints pale marked. Wings milky white.

Length 22 mm.

Habitat: Borneo. Type in National Museum, Budapest.

The peculiar milky-white wings and short tibiæ are distinctive of this species.

12. LONGICOLLIS Cam.

Megiseleius longicollis Cam. (3), p. 32, ♀.

♀. Frons coarsely and closely striate, obliquely above, transversely below; vertex and occiput closely obliquely striate, latter

with indistinct impression. (No details as to the proportions of the antennal joints are given, and these are broken off in the co-type in the British Museum.) Prothorax elongate, deeply incised at apex, the incision basally rounded; neck trans-striate, semiannular smooth. Mesonotum basally coarsely and irregularly reticulate, apically centrally impressed and laterally irregularly punctate. Scutellum smooth, laterally punctate. Mesopleuræ smooth, basally pilose; metapleuræ rugose. Median segment closely and coarsely punctate rugose. Petiole trans-striate, about as long as the smooth remainder of abdomen. Terebra longer than body, white-banded before apex. Hind coxæ closely but not strongly striate; hind femora bidentate.

Black: head pale rufous, orbits yellowish, three basal antennal joints, anterior legs, and base of second segment rufescent; prothorax brownish. Wings clear hyaline, stigma and nervures black.

Length 18–20 mm.; terebra 20–22 mm.

Habitat: Sarawak (Robert Shelford).

13. *TURCOMANORUM* Semenow.

Stephanus turcomanorum Semenow, p. 435; André, p. 488, ♀.

♀. Face and frons coarsely subtransversely rugose; vertex with two transcarinæ enclosing a falcate space; occiput trans-rugose; temples finely subrugose above, with a shining raised space near external margin of eyes, beneath which they are coriaceous; posterior margin of head simple but sharp. Third flagellar joint longer than second, but shorter than first and second together. Pronotum regularly transrugose, neck elongate. Mesonotum in front irregularly punctato-rugose, behind more feebly and subarcuately rugose. Mesopleuræ densely coriaceous-rugose; metapleuræ and median segment reticulate rugose, scarcely separated. Petiole finely and densely trans-striate, about as long as rest of abdomen. Terebra about as long as body, sheaths unicolorous nigro-piceous. Hind legs with coxæ regularly transrugose; femora finely coriaceous, dull, bidentate; tibiæ constricted in basal two-thirds, and at the base of the clavate part irregularly and strongly impressed as if mutilated.

Rufopiceous; head, thorax, and legs chiefly rufescent; base and apex of petiole and two round spots on basal third of second segment white. Wings hyaline, stigma and nervures fuscous, former basally white.

Length 10 mm.

Habitat: Transcaspia; one ♀ taken near the military road to the station of Tedshe on the river of that name. Type in Mus. Zool. Acad. Caesar Scient. at Petropolsky.

This species is not unlike *F. indicus* Westw., but distinguished by the coarse sculpture of head and temples, and by the white-marked petiole and second segment.

14. *SIMPSONI* Kieff.*Fœnatopus simpsoni* Kieffer (6), p. 233, ♀.

♀. Head subglobose, dull; frons coarsely and irregularly rugose, reticulate between tubercles, with median longitudinal carina; vertex transcarinate; occiput reticulate. First flagellar joint half as long as scape, second one and a half times as long as first; third and fourth of equal length and each twice as long as second. Pronotum elongate, dull, alutaceous, more strongly behind; mesonotum reticulate; propleuræ and sternum coriaceous; meso- and meta-pleuræ, scutellum, and median segment alutaceous, with large and diffuse punctures. Petiole densely trans-striate, as long as rest of abdomen. Terebra shorter than body, "composed of two red filaments, apically black and spatulate, without sheaths." The absence of the sheaths must have been due to accident. Hind coxæ closely trans-striate; hind femora tridentate, finely and indistinctly trans-striate; hind tibiæ only apically slightly inflated.

Black; mandibles except apices, cheeks, 4-5 basal antennal joints, a distal spot on each side of third segment, tibiæ and tarsi red; a spot on temples, one on vertex and the trochanters dull red; anterior femora and apical third of hind tibiæ brown-black; hind femoral teeth black; middle metatarsus whitish. Wings hyaline, stigma linear, yellowish hyaline.

Length 11 mm.; abdomen 6 mm.; petiole 3 mm.; terebra 10 mm.

Habitat: Ilon, South Nigeria; 13.iii.1910; J. J. Simpson, Entom. Research Committee.

15. *VARIIDENS* Elliott (4), p. 257, ♀.*Fœnatopus variidens* Elliot (4), p. 257, ♀.

♀. Frons and ocellar space very finely striate; vertex and occiput transversely, almost arcuately striate; posterior margin of head strongly bordered. Cheeks slightly shorter than scape. Second flagellar joint one and a half times as long as first; third nearly as long as first and second together. Prothorax finely trans-striate, neck elongate, apically above deeply incised. Mesonotum irregularly rugose-punctate, central row of punctures distinct; scutellum centrally smooth, lateral lobes punctate. Mesopleuræ smooth; metapleuræ and median segment cribrate and confluent. Petiole finely trans-striate, slightly shorter than rest of abdomen. Terebra longer than body, with a 3 mm. broad white band before the 1 mm. broad black apex. Hind coxæ trans-striate; femora smooth, tridentate; tibiæ slightly longer than femora, compressed almost throughout.

Black; head ferruginous, frons darkest, inner orbits and anterior frontal tubercles paler; vertex, including ocellar space and occiput, black. Front tibiæ and tarsi rufescent; base of intermediate femora, their tibiæ externally and apical tarsal joints rufescent, metatarsus white; hind legs entirely black,

except the middle and apical femoral teeth, which are white. Wings iridescent hyaline, nervures pale brown, stigma centrally translucent.

Length 16 mm.; abdomen $9\frac{1}{2}$ mm.; petiole $4\frac{1}{2}$ mm.; terebra 18 mm.

Habitat: Paleboehan, Ratoe. M. E. Walsh (*ex* Frisby); 22nd February, 1916. Type in coll. Claude Morley.

The colour of the femoral teeth is distinctive. In *H. rugiceps* Elliott the basal tooth is white, the apical black; in the present species this is reversed.

16. *ARCUATUS* Kieff.

Fænatopus arcuatus Kieffer (4), p. 118, ♀.

♀. Head subglobose; frons irregularly rugose, almost reticulate; vertex transcarinate; occiput irregularly rugose, with longitudinal sulcus; temples centrally prominent; posterior margin of head bordered. Second flagellar joint about one and a half times as long as first; third as long as first and second together. Neck very short, thorax cribrate punctate above throughout; median lobe of scutellum centrally slightly shagreened. Mesopleuræ diffusely cribrate punctate. Petiole densely transaciculate, rather shorter than rest of abdomen. Terebra as long as body, sheaths brown, apically black. Hind legs with coxæ trans-striate; femora tridentate; tibiæ compressed rather beyond middle.

Dull black; head entirely red, or occiput black-brown; five basal antennal joints red; anterior femora brown; all tibiæ and tarsi pale brown or brownish white. Wings hyaline, stigma and nervures brown. The radius curvate, not angulate, emitted from apical third of stigma.

Length 10 mm.

Habitat: Cameroons. Type in National Entom. Museum, Berlin. (Conradt.)

17. *NATALICUS* Westw.

Stephanus natalicus Westw. (5), p. 127, pl. xxiv. fig. 8: Schlett., p. 102, ♀ ♂. *Neostephanus natalicus* Enderl. (2), p. 474. *Fænatopus natalicus* Morley (1), p. 110, ♀ ♂

♀ ♂. Frons finely transrugose, vertex transcarinate; occiput alutaceous. Posterior margin of head simple. Second flagellar joint one and a half times as long as first; third nearly as long as first and second together. Prothorax trans-striate. Mesonotum diffusely punctate; scutellum smooth. Meso- and meta-pleuræ nearly smooth, former pubescent, latter confluent with median segment, which is superficially and diffusely punctate. Petiole shorter than rest of abdomen, transaciculate, remainder smooth and feebly shining. Terebra shorter than body, fulvous, apically black. Hind legs with coxæ apically transaciculate; femora tridentate; tibiæ constricted to beyond middle. Tarsi five-jointed in ♂, three-jointed in female.

Fulvo-testaceous; antennæ basally nearly white; apex of median segment discally black; central abdominal segments apically nigrescent. Wings fuscous or fulvo-hyaline, iridescent, stigma pale.

Length, ♀, 10 mm.; abdomen 6 mm.; petiole $2\frac{1}{2}$ mm.; terebra 8 mm. ♂, $7\frac{1}{2}$ mm.

Habitat: Port Natal, S. Africa. Type in Hope Museum, Oxford.

In the British Museum are an old pair from F. Smith's collection with label "Port Natal," and a female with a green label from the same locality; all three were probably taken by the Swedish collector, Gueinzus, about 1859.

This species bears a strong superficial resemblance to *Diastephanus alutaceus* Morley, but, in addition to the venation, it may be distinguished easily by the sculpture of vertex and pronotum, and by the tridentate hind femora.

18. LONGICAUDA Elliott.

Fœnatopus longicauda Elliott (2), p. 30, ♀.

♀. Frons transrugose, vertex finely trans-striate, occiput smooth and shining; frontal tubercles short and blunt; three stout carinæ between the posterior ocelli. Posterior margin of head simple. Basal flagellar joints normal. Prothorax finely trans-striate; mesonotum cribrate punctate; mesopleuræ smooth, with a few large punctures in the middle; metapleuræ coarsely punctate above, smooth below, separated by a crenulate furrow from the cribrate punctate median segment. Petiole trans-striate, a little longer than rest of abdomen, which is smooth and shining. Terebra half as long again as body, with a sharply-defined subapical white band, 2 mm. wide and $1\frac{1}{2}$ mm. at apex, black. Hind coxæ trans-striate, basally more coarsely; hind femora very finely alutaceous and rather shining, tridentate; hind tibiæ compressed to a little beyond middle.

Black; mandibles except apex and face pale testaceous; anterior legs rufescent, tibiæ paler; hind tarsi rufescent. Wings basally infusate, nervures black.

Length 15 mm.; abdomen 10 mm.; petiole $5\frac{1}{2}$ mm.; terebra 22 mm.

Habitat: Nilgiri Hills, India, 3000 ft.; 14th April, 1888 Sir George Hampson. Type in British Museum.

Very like *F. iridipennis* Elliott, but easily known by the infusate wings and smooth occiput with simple margin.

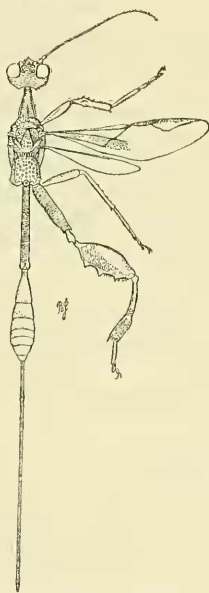
19. RUGICEPS Elliott.

Fœnatopus rugiceps Elliott (2), p. 29, ♀.

♀. Frons granulate rugose, vertex and occiput subarcuate rugose. Frontal tubercles rather small and blunt, the space between them rugose; three carinæ between the posterior ocelli.

Posterior margin of head strongly bordered. Scape longer than cheeks. Second flagellar joint not quite half as long again as first; third about as long as first and second together. Prothorax strongly trans-striate, with rather broad smooth posterior margin; mesonotum coarsely punctate, apically smooth; propleuræ lightly punctate; mesopleuræ basally punctate, apically smooth; metapleuræ coarsely punctate, separated by a row of punctures from the median segment, which has large and diffuse punctures. Petiole trans-striate, as long as rest of abdomen, which is finely alutaceous. Terebra shorter than the body, basally rufescent, the colour gradually passing into an ill-defined subapical yellowish

Text-figure 5.

*Fœnatopus rugiceps.*

ring, extreme apex black. Hind coxæ coarsely transrugose, their femora tridentate, the basal tooth broad triangular, the central longer and more rounded, the apical narrow and very sharply pointed; hind tibiæ constricted in basal two-thirds.

Black; head rufo-testaceous, frons and vertex nigrescent, face and base of mandibles testaceous. Front legs rufo-testaceous, femora darker; middle legs lighter, with base of tibiæ and rather more than basal half of metatarsus white; hind legs rufescent, the basal and central femoral teeth white, the apical black, apex of tibiæ and the metatarsus except its apex white. Wings feebly infusate, nervures blackish.

Length 12 mm.; abdomen 7 mm.; petiole $3\frac{1}{2}$ mm.; terebra 10 mm.

Habitat: South India. F. Smith coll. Type in British Museum.

The type bears a label with the MS. name "*F. ruficeps* Smith." A red head is very common in this subgenus and in no way distinctive. The rugosity of the head seems more characteristic. This species may be easily known by the colour of the femoral teeth, which appears to be a very constant character.

20. *PICEICORNIS* Cam.

Fœnatopus piceicornis, Cam. (10), p. 360, ♀.

♀. Frons subarcuately, vertex more distinctly arcuately rugose; occiput finely and closely trans-striate. Pronotum smooth; mesonotum in basal half strongly, irregularly reticulate, laterally coarsely punctate; scutellum smooth, laterally coarsely punctate. Median segment coarsely and diffusely punctate. Petiole finely trans-striate, as long as rest of abdomen. Terebra slightly shorter than body. Hind femora tridentate.

Black; outer orbits broadly yellow, mandibles apically rufo-testaceous, antennæ piceous, apically darker; anterior tibiæ and tarsi pale testaceous; hind trochanters, apex of tibiæ and the tarsi rufo-testaceous. Wings clear hyaline, stigma and nervures black.

Length 13 mm.; terebra 13 mm.

Habitat: Dima, West Africa (A. Koller). Type in Congo Museum, Tervueren.

The pale apex of mandibles is unusual, they are usually darker there.

21. *IRIDIPENNIS* Elliott.

Fœnatopus iridipennis Elliott (2), p. 30, ♀.

♀. Frons arcuate rugose, vertex and occiput finely and distinctly trans-striate; two short carinæ between the posterior ocelli; posterior margin of head bordered. Basal flagellar joints normal. Neck of pronotum smooth, rest trans-striate, with narrow smooth posterior margin. Mesothorax with large, well-separated punctures. Propleuræ finely striate; mesopleuræ finely alutaceous, metapleuræ and median segment cribrate punctate, separated by a carina. Petiole trans-striate, extreme apex smooth, as long as rest of abdomen; base of second segment trans-striate, remainder smooth. Terebra half as long again as body, white subapical band 2 mm. broad. Hind coxæ finely trans-striate, their femora tridentate; tibiæ constricted in basal two-thirds.

Black; head red, vertex black; the anterior tubercle has its front half red, the posterior half black. Anterior legs and hind tarsi rufescent, base of middle tibiæ and their metatarsus testa-

ceous. Wings hyaline, strongly iridescent throughout, nervures black.

Length 15 mm.; abdomen 10 mm.; petiole 5 mm.; terebra 22 mm.

Habitat: Dehra Dun, India. Nov. 1907; Lt.-Col. F. W. Thomson, I.M.S.

The sharply-defined red colour on the frons, including just the front half of the anterior tubercle, is unusual. May be distinguished from *F. longicauda* Elliott by the striate occiput, smooth neck of pronotum, and bordered posterior margin of head.

A male, tentatively placed with this female, differs in the finer sculpture of the head and striate metapleuræ. The base of the antennæ and the head are testaceous, with the vertex and part of occiput black. A very slender insect.

Length 11 mm.; abdomen 7 mm.; petiole 4 mm.

Habitat: Kangra Valley, 4000 ft. July 1889; Dudgeon.

22. PUNCTATUS Elliott.

Fenatopus punctatus Elliott (2), p. 73, ♀.

♀. Frons arcuate rugose, vertex and occiput finely transrugose; posterior margin of head bordered; three carinæ between the posterior ocelli. Scape slightly longer than cheeks; basal flagellar joints normal. Pronotum strongly transrugose, with broad smooth posterior margin; mesonotum transrugose; central lobe of scutellum smooth, with a few large punctures, the lateral lobes closely punctate. Petiole finely trans-striate, shorter than rest of abdomen, which is smooth and shining. Terebra as long as body, white-banded. Hind coxæ transrugose; femora transrugose, tridentate; tibiæ compressed to middle.

Rufescent; a broad white band on each side under the eyes to base of mandibles. Wings hyaline, nervures rufescent.

Length $13\frac{1}{2}$ – $16\frac{1}{2}$ mm.; abdomen $8\frac{1}{2}$ –11 mm.; petiole 4–5 mm.; petiole $13\frac{1}{2}$ – $16\frac{1}{2}$ mm.

Habitat: Burma. Two specimens in British Museum; the smaller with label "Birmah, F. Smith, coll."; the larger "Birmah" only.

The puncturation on the lateral lobes of scutellum is unusually dense.

23. TOGOENSIS Stadlm.

Stephanus togoensis Stadlm. (2), p. 80, ♂; Enderl. (1), p. 203, ♀ ♂. Var. *fasciatus* Enderl. l. c., ♀. *Diastephanus togoensis* Enderl. (2), p. 476; Morley (1), p. 113.

♂. Frons arcuate rugose; vertex with three or four coarse ridges; occiput rather more finely transrugose, with subobsolete central impression. Posterior margin of head slightly bordered. Second flagellar joint one and a half times as long as first; third

slightly shorter than first and second together. Neck of pronotum laterally obliquely rugose, remainder alutaceo-punctate; mesonotum coarsely punctate; scutellum smooth, with marginal punctures; metanotum longitudinally striate. Mesopleuræ diffusely punctate, upper margin polished; metapleuræ and median segment confluent, coarsely and superficially punctate. Petiole finely trans-striate, as long as, or slightly shorter than, remainder of abdomen. Hind coxæ trans-striate; hind femora tridentate.

Black; head, base of mandibles, five basal antennal joints, prothorax, tegulæ and legs, except hind coxæ and apex of hind femora, ferruginous. Wings hyaline, nervures dark brown.

Length 8-11 mm.

♀. Similar to ♂; terebra as long as body, spicula red-brown, sheaths ferruginous, apically black. Length 11 mm.

Habitat: Bismarcksburg, Togo. L. Conradt, 1893.

Var. *fasciatus* Enderl. More slender than the type-form; band across basal half of third segment rufescent; posterior femora basally dark.

Habitat: Johann Albrechtshöhe, North Cameroons. L. Conradt, 1895-96.

Dr. Enderlein (*l.c.*) places this species in his subgenus *Diastephanus*, but Stadelmann expressly states that the neururation is exactly as in *F. indicus* Westw., and it is so closely similar to *F. conradti* that I incline to consider it merely a colour variety of that species. The different sculpture of scutellum and the absence of the slight smooth depression between metapleuræ and median segment appear to be the only differences. No mention of the femoral teeth is made in the description of *F. conradti*.

24. CLARIPENNIS Elliott.

Fenatopus claripennis Elliott (2), p. 81, ♀.

♀. Frons arcuate rugose, vertex subarcuate trans-striate, with distinct central longitudinal furrow, occiput more finely striate. Posterior margin of head bordered. A long, stout carina just in front of the posterior ocelli and two shorter ones between them. Scape as long as cheeks. Second flagellar joint one and a half times as long as first, third nearly as long as first and second together. Neck of pronotum coarsely, obliquely striate, the remainder alutaceous; mesonotum moderately punctate. Mesopleuræ alutaceous, basal half diffusely punctate; metapleuræ nearly smooth, with diffuse, large punctures, separated by a line of punctures from the median segment, which is alutaceous and diffusely punctate. Petiole trans-striate, its extreme apex smooth, as long as rest of abdomen. Terebra shorter than body, black. Hind legs with coxæ trans-striate, femora tridentate and very finely alutaceous, tibiæ constricted to middle.

Black; head rufescent, vertex darker; tegulæ, basal half of petiole and its apex broadly, and the second and third segments

basally red. Anterior legs rufescent, femora centrally and tibiæ partly darker; middle metatarsus yellowish; hind legs black, apex of femora, the tibiæ and tarsi rufescent. Wings very clear hyaline, apical half iridescent.

Length 15' mm.; abdomen 9 mm.; petiole $4\frac{1}{2}$ mm.; terebra 13 mm.

Habitat: Nyassaland, Chiromo, Ruvo River. R. C. Wood, 1916. Type in British Museum.

The long red carina in front of the posterior ocelli and the sculpture of the prothorax sufficiently distinguish this species.

25. *ARATIFRONS* Enderl.

Fenatopus aratifrons Enderl. (3), p. 207, ♂.

♂. Frons finely and densely, vertex and occiput more strongly transrugose. Pronotum with fine striation between coarser rugosities, laterally anteriorly alutaceo-granulate, posteriorly closely longitudinally striate. Scutellum depressed, coarsely punctate. Mesopleuræ sparsely punctate, posterior margin smooth, with fine trans-striation, upper third with sparse yellow hairs. Petiole densely trans-striate, second segment smooth, basally longitudinally striate, apically dull. Hind coxæ irregularly rugose, posterior fourth more regularly; hind femora bidentate.

Black; head bright rufo-testaceous; front coxæ and anterior legs ferruginous yellow; hind tarsi ferruginous, metatarsus pale yellow. Wings hyaline, stigma apically rounded, ochre-yellow; nervures brown.

Length 10.2 mm.; petiole $2\frac{1}{8}$ mm.; fore wing 6 mm.

Habitat: Kankau, Formosa. H. Sauter. Type in Dahlen Museum.

26. *FLAVICOLLIS* Cam.

Fenatopus flavicollis Cam. (10), p. 359, ♂.

♂. Anterior frontal tubercle smaller than the posterior, space between them obliquely striate; vertex arcuate striate. Mesonotum basally depressed and there bounded by a curved carina, and apical trans-sulcus, central part bounded by shallow oblique sulci and irregularly striate. Scutellum smooth, with irregular marginal punctures. Metanotum (median segment) diffusely punctate. Petiole dull and closely striate. Hind coxæ closely striate; hind femora tridentate.

Black; face, clypeus, outer orbits chiefly, scape, 3-4 basal flagellar joints, prothorax except central black line, meso- and meta-pleuræ, and anterior legs testaceous; vertex, base, and apex of hind tibiæ rufo-testaceous. Wings hyaline, stigma pale, nervures dark testaceous.

Length 8 mm.

Habitat: Dima, West Africa. A. Koller. Type in Congo Museum, Tervueren.

DIASTEPHANUS Enderl.

Enderlein (2), p. 473.

This subgenus, as defined by Enderlein, has the lowest form of neururation, consisting of three basal cells and a widely open radial cell; the median nervure rarely extends beyond the transverse nervure, and then only as a short stump, whereas in *Fænatopus* it extends to the full length of an outer submedial cell, or closely approximating that length. It occurs in the Ethiopian, Oriental, and Australian Regions, but has not yet been recorded from the Western Continent.

The species vary in size from 6 to 29 mm. in length, and the colour is, on the whole, brighter and more varied than in the other subfamilies; a white or flavous frons with rufescent lines is very common.

In preparing a table of species, I have experienced much difficulty in consequence of the want of details in some descriptions, in which, for instance, such important points as the sculpture of the head and the proportional length of the basal antennal joints are omitted. The colour of the terebral sheaths forms a good distinction in many cases, but these being broken in one species, renders it useless in that section. The colour of the terebra must always be understood to refer to the sheaths; the spicula is usually rufescent.

Table of Species.

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|-------|-----|---|-------------------------------|
| (20.) | 1. | Hind femora tridentate. | |
| (11.) | 2. | Petiole as long as rest of abdomen. | |
| (6.) | 3. | Hind femoral teeth white. | |
| (5.) | 4. | Femoral teeth milk-white; frons arcuate striate, mesonotum and median segment coriaceous and diffusely punctate; terebral sheaths red-brown, with broad subapical yellow band | 1. <i>leucodon</i> Kieff. |
| (4.) | 5. | Femoral teeth whitish; frons finely rugose, mesonotum coarsely irregularly rugose-punctate, median segment cribrate punctate, terebral sheaths black..... | 2. <i>pallescens</i> Schlett. |
| (3.) | 6. | Hind femoral teeth not all white. | |
| (8.) | 7. | Posterior margin of head produced into a collar; femoral teeth brown, median segment alutaceous | 3. <i>fuscidens</i> Kieff. |
| (7.) | 8. | Posterior margin of head bordered, but not collar-like. | |
| (10.) | 9. | Sheaths of terebra black; neck short; hind femora punctate, the teeth black..... | 4. <i>birói</i> Szépl. |
| (9.) | 10. | Sheaths of terebra white-banded; neck elongate; hind femora trans-striate, central tooth white | 5. <i>bilineatus</i> Elliott. |
| (2.) | 11. | Petiole distinctly longer or shorter than rest of abdomen. | |
| (17.) | 12. | Petiole distinctly shorter than rest of abdomen. | |
| (14.) | 13. | Body unusually slender, pronotum elongate and shining, frons densely striate | 6. <i>gracilis</i> Kieff. |
| (13.) | 14. | Body normal, prothorax not elongate, more or less dull. | |
| (16.) | 15. | Head finely reticulate, posterior margin simple... | 7. <i>tertianus</i> Morley. |
| (15.) | 16. | Head rugose, posterior margin bordered | 8. <i>nova-guineensis</i> |
| (12.) | 17. | Petiole distinctly longer than rest of abdomen. | [Szépl.] |

- (19.) 18. Metapleuræ and median segment finely reticulate-rugose; [Enderl.
terebra shorter than body, sheaths red-yellow. 9. *flavomaculatus*
- (18.) 19. Metapleuræ and median segment irregularly coarsely rugose; [Schulthess.
terebra as long as body, sheaths red-brown ... 10. *rothkirchi*
- (1.) 20. Hind femora bidentate.
- (38.) 21. Sheaths of terebra with subapical pale band.
- (23.) 22. Sheaths broadly yellow-banded; head small; second seg-
ment finely punctate and dull; femoral teeth yellowish. [Enderl.
11. *flavidentatus*
- (22.) 23. Terebral sheaths white-banded.
- (27.) 24. Hind femoral teeth white.
- (26.) 25. Anterior tubercle obsolete, frons transrugose, neck elongate,
slender, median segment centrally basally smooth 12. *leucodontus* Schlett.
- (25.) 26. Anterior tubercle normal, frons arcuate striate, neck normal,
median segment cribrate punctate throughout. 13. *elegans* Elliott.
- (24.) 27. Hind femoral teeth unicolorous with femora.
- (31.) 28. Frons rugose.
- (30.) 29. Frons with strong longitudinal carina, neck normal, meso-
pleuræ and hind femora smooth 14. *carinifrons* Enderl.
- (29.) 30. Frons not carinate, neck short and broad, mesopleuræ aciculate-
punctate, hind femora aciculate 15. *nigripes* Szépl.
- (28.) 31. Frons not rugose.
- (33.) 32. Head very small, frons alutaceous, neck granulate aciculate,
metapleuræ and median segment with large hexagonal
punctures 16. *parviceps* Enderl.
- (32.) 33. Head normal.
- (35.) 34. Frons reticulate, neck transcarinate, metapleuræ finely acicu-
late, petiole longer than rest of abdomen 17. *frontilinea* Morley.
- (34.) 35. Frons trans-striate.
- (37.) 36. Frons arcuate striate, terebra shorter than body... 18. *trilineatus* Elliott.
- (36.) 37. Frons trans-striate, but not arcuately; terebra longer than
body 19. *chinensis* Elliott.
- (21.) 38. Sheaths of terebra unicolorous.
- (40.) 39. Body rufo-testaceous, femoral teeth white; terebra apically
black 20. *alutaceus* Morley.
- (39.) 40. Body chiefly black.
- (42.) 41. Petiole only half as long as rest of abdomen; head small; [Enderl.
sheaths of terebra brown 21. *brevipetiolatus*
- (41.) 42. Petiole much more than half as long as body.
- (46.) 43. Terebra about as long as body.
- (45.) 44. Frons finely trans-striate; first and second flagellar joints of
equal length..... 22. *trilobatus* Elliott.
- (44.) 45. Frons transrugose: second flagellar joint one and a half times
as long as first 23. *dohrni* Enderl.
- (43.) 46. Terebra distinctly longer or shorter than body.
- (48.) 47. Terebra longer than body; frons arcuate rugose; two pro-
minences on posterior half of hind femora strongly
developed 24. *quadridens* Elliott.
- (47.) 48. Terebra shorter than body.
- (50.) 49. Terebra only half as long as body, Head small, frons arcuate
rugose, median segment aciculate, laterally punctate
25. *terebellus* Enderl.
- (49.) 50. Terebra much more than half as long as body.
- (52.) 51. Anterior femoral teeth yellow, the posterior black. Head
small; petiole very slender 2nd segment punctate.
26. *ruficollis* Enderl.

- (51.) 52. Femoral teeth unicolorous.
 (56.) 53. Femoral teeth white.
 (55.) 54. Second flagellar joint one and a half times as long as first, third longer than first and second together; mesopleuræ smooth above; median segment strongly punctate [Enderl. throughout 27. *maculifemur*
 (54.) 55. Second flagellar joint twice as long as first; third only as long as first and second together; mesopleuræ trans-striate, median segment cribrate punctate, with elongate triangular central smooth space 28. *sulcatus* Elliott.
 (53.) 56. Femoral teeth unicolorous with femora.
 (60.) 57. Neck of prothorax elongate.
 (59.) 58. Second flagellar joint one and one-third as long as first, petiole longer than rest of abdomen; second segment rugulose 29. *salomonis* Westw.
 (58.) 59. Second flagellar joint fully twice as long as first; petiole slightly shorter than rest of abdomen; 2nd segment smooth 30. *celebensis* Szépl.
 (57.) 60. Neck of prothorax normal.
 (62.) 61. Frons irregularly rugose; abdomen from 2nd segment finely, densely punctate, dull 31. *szépligetti* Enderl.
 (61.) 62. Frons finely trans-striate, abdomen from 2nd segment smooth and polished 32. *simillimus* Elliott.

♂.

- (6.) 1. Hind femora tridentate.
 (5.) 2. Frons alutaceous, first and second flagellar joints of equal length; anterior legs yellow.
 (4.) 3. Posterior margin of head bordered; neck finely rugose, semi-annular coarsely rugose; petiole about as long as rest of abdomen; femora finely and densely punctate. 33. *similis* Szépl.
 (3.) 4. Posterior margin of head simple; pronotum nearly smooth; petiole distinctly longer than rest of abdomen; femora smooth and scarcely punctate 34. *flaviceps* Elliott.
 (2.) 5. Frons rugose-punctate; second flagellar joint nearly twice as long as first; petiole nearly twice as long as rest of abdomen 35. *fuscinervis* Cam.
 (1.) 6. Hind femora bidentate.
 (8.) 7. Petiole as long as rest of abdomen; face and lower half of frons white; wings red and green iridescent ... 36. *flavifrons* Elliott.
 (7.) 8. Petiole distinctly longer or shorter than rest of abdomen.
 (10.) 9. Petiole distinctly longer than rest of abdomen; pronotum and femoral teeth entirely black 37. *fasciatus* Szépl.
 (9.) 10. Petiole distinctly shorter than rest of abdomen.
 (12.) 11. Anterior frontal tubercle obsolete; occiput very short; both femoral teeth white 38. *flavonotatus* Elliott.
 (11.) 12. Anterior frontal tubercle normal; occiput not short; posterior femoral tooth black... 26. *ruficollis* Enderl.

1. LEUCODON Kieff.

Diastephanus leucodon Kieff. (4), p. 116, ♀.

♀. Head subglobose; frons densely arcuate striate, vertex with three transcarinæ; occiput densely trans-striate, dull; posterior margin of head produced into a short collar. Basal flagellar joints normal. Neck elongate, densely striate; semi-annular coriaceous with smooth posterior margin. Mesonotum and median segment coriaceous, with large, diffuse and superficial

punctures. Scutellum centrally smooth and shining, marginal rows of punctures large and deep, lateral lobes dull. Pleuræ coarsely alutaceous. Petiole densely trans-striate, as long as rest of abdomen. Terebra nearly as long as body, spicula red, sheaths red-brown, with a clear yellow ring before the black apex. Hind legs with coxæ densely trans-striate; femora bidentate; tibiæ compressed in basal two-thirds.

Black; head except apices of mandibles, six basal antennal joints, prosternum, tegulæ, anterior legs except femora above, apex of hind coxæ, base and apex of hind femora, basal two-thirds of hind tibiæ, and apex of petiole clear red; space between anterior ocellus and posterior margin of head, anterior femora above and apical third of hind tibiæ brown; base of petiole, basal half of third tergite, a spot on each side of fourth and the hind tarsi yellowish white; hind femoral teeth milk-white. Wings hyaline, stigma and nervures subhyaline.

Length 10 mm.

Habitat: Cameroons. Type in National Entomological Museum, Berlin. (Conradt.)

Very like *D. fuscidens* Kieff., but differs chiefly in the sculpture of frons, pro- and meso-notum, and in the colour of the terebra and of the femoral teeth.

2. *PALLESCENS* Schlett.

Stephanus pallescens Schlett., p. 123, ♀. *Diastephanus pallescens* Enderl. (2), p. 475.

♀. Frons finely and more or less distinctly transrugose; occiput obconical, anteriorly rather coarsely trans-striate, posteriorly more irregularly rugose. Posterior margin of head bordered. Cheeks longer than scape. Second flagellar joint scarcely longer than first; third one and a half times as long as second. Neck elongate, very slender, finely trans-striate above; semiannular moderately finely rugoso-punctate, its posterior margin smooth. Mesonotum coarsely and irregularly punctat rugose. Scutellum finely punctate rugose. Mesopleuræ smooth and shining above, rather dull beneath, with a few indistinct punctures; metapleuræ and median segment somewhat coarsely cribrate-punctate, not separated. Petiole trans-striate, scarcely as long as rest of abdomen, which is feebly shining or dull. Terebra shorter than body, sheaths entirely black. Hind legs with coxæ transrugose; femora finely trans-striate and dull, tridentate; tibiæ longer than femora, compressed to beyond middle.

Black; face ferruginous, dull flavous towards eyes and on temples; mandibles and antennæ basally rufescent. Anterior legs chestnut-brown; teeth of hind femora whitish. Wings hyaline.

Length 11 mm.; terebra 8 mm.

Habitat: Philippines. Type in Town Museum at Hamburg.

This species resembles *D. leucodontus* Schlett., but the anterior tubercle is fully developed, second flagellar joint shorter, pro- and meso-notum more coarsely sculptured and hind femora tridentate. From *D. salomonis* Westw. it may be at once known by the conformation of the neck of prothorax and the tridentate hind femora.

3. FUSCIDENS Kieff.

Diastephanus fuscidens Kieff. (4), p. 118, ♀.

♀. Head subglobose; frons and vertex irregularly rugose, latter with three transcarinae in front; occiput trans-striate, dull; posterior margin of head produced into a collar. Second flagellar joint one and a half times as long as first; third longer than first and second together. Pronotum coriaceous, with polished posterior margin; mesonotum transrugose; scutellum centrally smooth and shining, marginal rows of punctures superficial. Pleurae alutaceous. Median segment alutaceous, with large, diffuse punctures. Petiole densely trans-striate, as long as remainder of abdomen. Terebra as long as body, spicula red, sheaths entirely black-brown. Hind legs with coxae trans-striate; femora tridentate; tibiae compressed to beyond middle.

Black; head except apices of mandibles, four basal antennal joints, basal half of third segment entirely, anterior legs, apex of hind coxae, hind femora entirely and hind tibiae basally red; hind tarsi testaceous; apical joint of all tarsi black; femoral teeth brown. Wings hyaline, stigma and nervures subhyaline.

Length 11 mm.

Habitat: Cameroons (Conradt). Type in National Entomological Museum, Berlin.

Very like *D. leucodon* Kieff., differing chiefly in the irregularly rugose frons, transrugose mesonotum, and in the colour of terebral sheaths and hind femoral teeth.

4. BIROI Szépl.

Fenatopus birói Szépl., p. 530, ♀. *Diastephanus b.* Enderl. (2), p. 475.

♀. Frons irregularly, not transversely rugose; occiput short and rugose; posterior margin of head bordered. First and second flagellar joints of equal length. Neck short, subquadrate, anteriorly transversely, then irregularly rugose; semiannular coarsely rugose. Mesonotum coarsely rugose; scutellum centrally smooth, otherwise diffusely punctate. Mesopleurae with large, dense punctures, anteriorly dull. Median segment with large punctures, which are confluent and form rugosities on the apical half. Petiole finely striate, about as long as rest of abdomen. Terebra slightly shorter than body, sheaths black. Hind coxae finely trans-striate, their femora finely and densely punctate tridentate.

Black; cheeks and temples yellowish; mouth-parts, base of antennæ, anterior tibiæ mostly, and all tarsi yellow-red. Wings hyaline, stigma brown, tegulæ basally yellow.

Length 11 mm.

Habitat: Sinbang, New Guinea. Type in Hungarian National Museum.

5. *BILINEATUS* Elliott.

Diastephanus bilineatus Elliott (2), p. 162, ♀.

♀. Head finely trans-striate; two carinæ between the posterior ocelli; all frontal tubercles distinct; posterior margin of head bordered. Second flagellar joint one and a half times as long as first; third longer than second, but shorter than first and second together. Neck of prothorax elongate, finely trans-striate, remainder smooth; mesonotum subglabrous, very diffusely punctate; pro- and meso-pleuræ very finely trans-striate; metapleuræ and median segment cribrate punctate, not separated. Petiole trans-striate, as long as rest of abdomen, which is smooth and shining. Terebra shorter than body, sheaths rufescent, with a subapical band $\frac{3}{4}$ mm. broad, before the $\frac{1}{2}$ mm. broad black apex. Hind coxæ and femora distinctly, their tibiæ less strongly trans-striate, the femora tridentate, tibiæ compressed to middle.

Black; head rufescent, mandibles except extreme apex, frons centrally broadly and orbits up to the level of the anterior tubercle flavous; point of abdomen below terebra white. Anterior knees pale rufescent, hind legs darker, with knees and metatarsi pale. Central femoral tooth white. Wings hyaline, iridescent; stigma and nervures brown.

Length 8-8 $\frac{1}{2}$ mm.; abdomen 5 mm.; petiole 2 $\frac{1}{2}$ mm.; terebra 7 mm.

Habitat: Pusa, Bihar; G. R. Dutt, 12. v. 09. Chapra, Bengal; Mackenzie.

The whole of the lower part of the head is white, excepting the more or less narrow rufescent lines separating the frons from the inner orbits. The sculpture of the head, the colour of the terebra and that of the femoral teeth will suffice to distinguish this species from all those with tridentate hind femora yet known. (May 1919.)

6. *GRACILIS* Kieff.

Diastephanus gracilis Kieff. (5), p. 28, ♀.

♀. Body, especially abdomen, unusually slender. Frons dull and densely trans-striate, arcuately round anterior ocellus; vertex with five transcarinæ; occiput rugose, without central impression; posterior margin of head simple. Second flagellar joint little longer than first; third shorter than first and second

together. Pronotum elongate, shining, finely punctate, posterior margin rugose. Mesonotum coarsely transrugose; scutellum with central lobe finely punctate, with large marginal punctures, separated by rows of small punctures from the lateral lobes, which are alutaceous. Mesopleuræ finely alutaceous; metapleuræ reticulate rugose, the impressed part alutaceous. Median segment finely punctate with diffuse larger punctures, and with a broad crenulated sulcus on anterior margin. Petiole very slender, finely trans-striate, much shorter than rest of abdomen, which is coriaceous. Terebra little shorter than body, spicula red-brown, sheaths black. Hind legs with coxæ densely transrugose; femora finely alutaceous, tridentate; metatarsus partly and second tarsal joint entirely white pubescent beneath.

Black; head except apices of mandibles and occiput, four basal antennal joints, apex of petiole, basal half of third segment, apex of hind femora, the tibiæ and tarsi yellow or red; posterior coxa and femora brown. Wings whitish, stigma dark bordered, nervures pale yellow.

Length 13 mm.; terebra 12 mm.

Habitat: Mundame, Johann Albrechtshöhe, German East Africa. Conradt, 1906.

7. TERTIANUS Morley.

Diastephanus tertianus Morley, p. 108, ♀.

♀. Head finely reticulate throughout; posterior tubercles and vertical carina small; cheeks much longer than scape; posterior margin of head simple. Second and third flagellar joints of equal length and about half as long again as first. Neck longitudinally sulcate, laterally obliquely carinate; semiannular microscopically sculptured and dull, without any smooth posterior margin. (Mesonotum destroyed by pin.) Scutellum dull and diffusely punctate. Mesosternum shining, finely alutaceous. Mesopleuræ alutaceous and sparsely punctate; metapleuræ finely transcarinate, confluent with median segment, which is finely reticulate and sparsely punctate. Petiole transaciculate, shorter than rest of abdomen, which is dull. Terebra rather shorter than body, sheaths black. Hind legs with the coxæ narrow, dull, and apically transaciculate; femora dull, tridentate; tibiæ longer than femora, constricted to middle.

Black; head, base of antennæ, prothorax, apex of petiole, base of second segment, basal two-thirds of third, and the legs red; base of hind femora and a mark inside apical third of hind tibiæ black. Wings hyaline; stigma lanceolate, centrally translucent; nervures brown.

Length 12 mm.; abdomen 7 mm.; petiole 3 mm.; terebra $10\frac{1}{2}$ mm.

Habitat: Lesapi River, Mashonaland. Nov. 1897; Guy Marshall.

8. NOVA-GUINEENSIS Szépl.

Fænatopus nova-guineensis Szépl., p. 529, ♀. *Diastephanus nova-g.* Enderl. (2), p. 476.

♀. Frons finely rugose, laterally more transversely; vertex transrugose; occiput short and rugose, with distinct central apical sulcus; posterior margin of head bordered. First flagellar joint as long as second. Pro- and meso-notum coarsely rugose, neck short and broad. Scutellum only centrally smooth. Mesopleuræ dull, densely aciculate, with large, diffuse punctures. Median segment rather smooth, with large punctures. Petiole densely trans-striate, shorter than rest of abdomen. Terebra little shorter than body, sheaths black. Hind legs with coxæ coarsely transrugose; femora densely and finely alutaceo-punctate, tridentate.

Black; head except vertex, base of antennæ, anterior tibiæ and all tarsi yellow-red; anterior femora brown. Wings hyaline, nervures brown; stigma centrally yellow, tegulæ black.

Length 10 mm.

Habitat: Stephansort, New Guinea. Type in Hungarian National Museum.

Szépligetti states that in his *F. nova-guineensis*, *biró*, *similis*, and *nigripes* the median nervure is prolonged outside the basal nervure. Enderlein (2) gives as the definition of his subgenus *Diastephanus*: "external submedian cell entirely wanting, there being at most a tiny remnant of the anterior bounding nervure," while, in *Fænatopus*, this nervure extends to the full extent of an external submedian cell. There might thus be some doubt as to the position of the above species; as, however, Enderlein places them in *Diastephanus*, I follow him.

9. FLAVOMACULATUS Enderl.

Stephanus flavomaculatus Enderl. (1), p. 205, ♀. *Diastephanus f.* (2), pp. 474-75.

♀. Frons indistinctly arcuate rugose; all frontal tubercles acuminate; vertex coarsely, occiput finely transrugose, without central impression. Posterior margin of head slightly bordered. Pronotum finely rugose, laterally deeply punctate just in front of the polished posterior margin; neck elongate. Mesonotum very coarsely transrugose; scutellum punctate, with central smooth space. Metanotum longitudinally striate. Metapleuræ and median segment finely reticulate rugose, separated by a fine raised line. Petiole rather finely trans-striate, longer than rest of abdomen. Terebra shorter than body, reddish-yellow, sheaths rust-yellow, apically black. Hind coxæ finely trans-striate; hind femora tridentate, teeth yellow.

Black; face, cheeks, five basal antennal joints, prosternum, anterior legs, and hind tibiæ ferruginous; median line and lateral margins of frons, base of petiole, apex of hind femora and spots

on segments 3-5, also apex of last segment yellow. Wings hyaline, nervures pale brown.

Length $12\frac{1}{2}$ mm.

Habitat: Johann Albrechtshöhe, N. Cameroons. L. Conradt, 1896.

There appears to be a very remarkable similarity between the specimens of this group of Stephanidæ from Johann Albrechtshöhe, North Cameroons, and, since several are described from single specimens only, and none from any sufficient number, there may be doubts as to the distinctness of the species. The difficulty of deciding this matter is greatly increased by the fact that the descriptions vary in the amount of the details; the relative length of the basal antennal joints, and especially details as to the hind legs and femoral teeth, are often wanting. In addition to this, Dr. Enderlein (1) gives a table of the African species of *Stephanus*—as then known to him—in which he gives characters differing from those in the detailed descriptions. Thus: *terebellus*—median segment (*a*) not separated from metapleuræ, (*b*) separated by a raised carina; *togoensis*—scarcely or not at all separated; *flavomaculatus*—neck (*a*) obliquely striate throughout, (*b*) finely rugose; *brevipetiolatus*—face (*a*) irregularly reticulate, (*b*) finely arcuate rugose. While provisionally retaining these species, further information is required to settle their claims.

10. ROTHKIRCHI Schulthess.

Diastephanus rothkirchi Schulthess, p. 283, ♀; Morley (1), p. 113, ♀.

♀. Frons irregularly and partly arcuately rugose; vertex with four transcarinae; occiput strongly transrugose, without longitudinal impression. Posterior margin of head sharply bordered. Scape as long as first and second flagellar joints together; second longer than first; third shorter than first and second together. Pronotum finely transrugose; semiannular centrally finely transrugose, laterally coarsely and irregularly punctate. Mesonotum coarsely rugoso-punctate; scutellum centrally smooth, with a few marginal punctures, lateral rows of punctures distinct, lateral lobes finely transrugose. Mesopleuræ finely rugose and diffusely punctate; metapleuræ confluent with median segment, and, like it, irregularly and coarsely rugoso-punctate, interstices and bottom of punctures very finely transrugose. (A few lines before this, the author states "median segment longer than mesonotum and scutellum, finely faceted, between the facets very finely transrugose.") Petiole finely transstriate, longer than rest of abdomen; second segment basally coarsely rugoso-punctate, remainder of abdomen smooth. Terebra as long as body, spicula red-brown, sheaths brown, paler before the black apex. Hind legs with coxæ and femora finely transrugose, latter tridentate; teeth in three groups, the central of one tooth only, largest of all; the basal and apical groups of two each, of which the inner is smallest; apex of tibiæ and inside of tarsi clothed with dense red-grey pubescence.

Black; head red except apices of mandibles and the occiput; 4-5 basal antennal joints, pronotum laterally and beneath, a basal band on third tergite, ventral surface of second sternite, all coxæ and legs red; petiole basally, knees and middle metatarsi basally white, hind coxæ and base of hind femora black. Wings hyaline, stigma elongate, narrow lanceolate, brownish; nervures dark brown.

Length 10 mm.; abdomen 6 mm.; petiole 3.5 mm.; wings 3.5 mm.; terebra 10.5 mm.

Habitat: Cameroons. Oberlieutenant v. Rothkirch, German Colonial Defence Force.

A specimen in the British Museum (M'Langa, Nyassaland, S. A. Neave, 2. i. 1914) differs from the above description only in having a more red-brown petiole and second segment black.

This species comes near *D. szepligetii* Enderl. and *D. gracilis* Kieff., but differs from both in size and sculpture. The number of minor denticulations between the larger hind femoral teeth appears to vary, but we do not possess sufficient details to decide whether this is an individual or specific difference.

11. FLAVIDENTATUS Enderl.

Diastephanus flavidentatus Enderl. (3), p. 204, ♀.

♀. Head rather small, globose. Neck strongly transrugose, laterally more finely and closely, semiannular finely trans-striate, apically more closely, posterior margin laterally rugose. Mesopleuræ sparsely and coarsely punctate, posterior margin smooth, upper third finely transrugose and yellow pubescent. Petiole finely transrugose; second segment dull, finely punctate and basally indistinctly rugose. Terebra rather longer than body, sheaths with broad yellow band before apex. Hind femora bidentate; hind tibiæ and metatarsus yellow pubescent.

Black; face, cheeks, lateral borders of frons, and a median line yellow; antennæ brown, basally paler. Anterior legs pale ferruginous; a streak on outside of basal fourth of front tibiæ, basal fourth of middle tibiæ and basal half of middle metatarsus yellow. Hind legs black-brown, tarsi rufescent, femoral teeth yellowish. Wings hyaline; stigma pale yellow, nervures brown.

Length $11\frac{1}{2}$ – $14\frac{1}{4}$ mm.; petiole 4.1–5.2 mm.; terebra $13\frac{1}{2}$ –15 mm.; fore wing 7– $8\frac{1}{2}$ mm.

Habitat: Formosa, 1911; Kankau, 1912; Hoozan, 1910. H. Sauter. Co-types in German Ent. Museum at Dahlen and in Stettin Museum.

Enderlein (*l.c.*) states that the only other species in this subgenus having yellow femoral teeth are his *D. maculifemur* and *D. ruficollis*. The detailed descriptions state clearly that in *D. maculifemur* both teeth are white, and in *D. ruficollis* the anterior tooth is yellow, the posterior black. The present species differs from *D. ruficollis* in the sheaths of terebra being yellow-banded, hind tibiæ pubescent, and both femoral teeth yellow; from *D. maculifemur* in smaller head, longer terebra, and in the colour of terebral sheaths and femoral teeth.

12. *LEUCODONTUS* Schlett.

Stephanus leucodontus Schlett., p. 121, ♀. *Diastephanus l.* Enderl. (2), p. 475.

♀. Frons finely, transversely coriaceous-rugose; anterior frontal tubercle wanting (otherwise always present); occiput very short, finely trans-striate, more coarsely behind the ocelli. Posterior margin of head simple; cheeks longer than scape. Second flagellar joint one and a half times as long as first; third longer than first and second together. Neck elongate and slender, obsoletely trans-striate; semiannular subnitidulous, with a central longitudinal trans-striate fovea. Mesonotum finely and irregularly transrugoso-punctate. Scutellum entirely smooth. Mesopleuræ smooth and shining, with a few superficial punctures below; metapleuræ smooth and shining in front, rather coarsely reticulate-rugose behind. Median segment centrally and basally smooth, laterally with large punctures, which are more dense apically. Petiole very finely transrugose, as long as rest of abdomen, which is smooth and strongly nitidulous. The terebra broken off. Hind coxæ slender, trans-striate; hind femora entirely smooth, bidentate; hind tibiae compressed to beyond middle.

Black; frons rufo-testaceous, rest of head ferruginous; antennæ basally testaceous; pronotum and legs brown; teeth of hind femora white, and hind tarsi white-marked. Wings entirely hyaline.

Length 10 mm.

Habitat: Sarawak. Type in Royal Nat. Hist. Museum, Berlin.

The absence of the usually well-developed frontal anterior tubercle will distinguish this species from all others. It closely resembles *D. pallescens* Schlett. and *F. indicus* Westw. It may be distinguished from both by the short occiput, simple posterior margin of head, and by the sculpture of the hind femora; from *F. indicus* Westw. it further differs in the neuration.

A specimen in the British Museum, from Singapore, has a white-banded terebra; length of body $10\frac{1}{2}$ mm.; terebra 9 mm.

13. *ELEGANS* Elliott.

Diastephanus elegans Elliott (2), p. 31, ♀.

♀. Frons finely arcuate striate; vertex trans-striate; occiput nearly smooth. Space between the posterior ocelli trans-striate. Posterior margin of head bordered. Basal flagellar joints normal. Pronotum very finely trans-striate and rather shining, basal margin smooth; mesonotum almost smooth. Central lobe of scutellum finely punctate. Propleuræ finely striate; mesopleuræ smooth and shining; metapleuræ and median segment cribrate punctate, separated by a carina. Petiole extremely finely trans-striate, shorter than rest of abdomen, which is smooth and

shining. Terebra shorter than body, sheaths white-banded. Hind coxæ trans-striate, their femora bidentate; tibiæ compressed to middle.

Black; head rufo-testaceous, vertex slightly darker; three basal joints of antennæ, prosternum, tegulæ, and anterior legs rufo-testaceous, the femora rather darker, tarsi paler, middle metatarsus whitish; hind legs darker, with the metatarsus paler. Femoral teeth white.

Length $6\frac{1}{2}$ mm.; abdomen $3\frac{1}{2}$ mm.; petiole $1\frac{1}{2}$ mm.; terebra 5 mm.

Habitat: Singapore. H. N. Ridley, 1900. Type in British Museum.

A delicate insect, distinguished by the space between the posterior ocelli being striate, instead of, as usual, carinate, and by the white femoral teeth.

14. CARINIFRONS Enderl.

Diastephanus carinifrons Enderl. (4), p. 292, ♀.

♀. Head rather small, globose; frons rugose to coarsely reticulate, transrugose between tubercles, from the anterior of which a strong carina runs longitudinally down frons. Vertex strongly transrugose, behind this a median longitudinal impression, and the occiput finely and closely trans-striate; posterior margin of head bordered. Second flagellar joint one and a half times as long as first; third as long as first and second together. Neck of prothorax strongly, semiannular finely transrugose, posterior margin polished smooth. Mesonotum anteriorly irregularly transrugose, posteriorly coarsely rugoso-punctate; scutellum smooth, apically diffusely punctate. Mesopleuræ smooth, with a transrugose longitudinal impression, the apical third in front of the impression strongly and densely punctate. Metapleuræ and median segment deeply reticulate, scarcely separated. Petiole finely trans-aciculate, apical margin narrowly smooth and polished, longer than rest of abdomen, which is smooth, basally rugose. Terebra longer than body, spicula ferruginous, sheaths black, white-banded before apex. Hind legs with coxæ long and slender, densely trans-striate; femora smooth.

Black; head except vertex and apices of mandibles, and 3-4 basal antennal joints ferruginous; anterior margin of frons and a median streak below anterior tubercle ferruginous; posterior margin of pronotum yellow; anterior legs red-brown; hind tarsi and tibiæ brown. Wings hyaline, nervures pale brown.

Length 14 mm.; abdomen $9\frac{1}{2}$ mm.; petiole $5\frac{1}{2}$ mm.; terebra 16 mm.; fore wing $7\frac{1}{2}$ mm.

Habitat: Soekaranda, Sumatra. 1 ♀. Dr. Dohrn.

Not unlike *D. dohrni* in colour, but petiole and terebra proportionally longer, sheaths of latter white-banded: sculpture of pro- and meso-notum different.

15. *NIGRIPES* Szépl.

Fenatopus nigripes Szépl., p. 531, ♀. *Diastephanus n.* Enderl. (2), p. 475.

♀. Frons coarsely rugose; occiput trans-striate with central impression; posterior margin of head bordered. Flagellar joints normal. Neck short and broad, transrugose, semiannular smooth. Mesonotum coarsely rugose; scutellum smooth. Mesopleuræ aciculate, with diffuse large punctures. Median segment with large, more or less confluent punctures, interstices aciculate. Petiole finely trans-striate, as long as rest of abdomen. Terebra as long as body, sheaths white-banded before apex. Hind legs with coxæ transrugose; femora finely aciculate, bidentate.

Black; head and base of antennæ red; middle tibiæ basally and the metatarsus white; hind tibiæ basally red-brown. Wings hyaline, stigma and nervures black.

Length 20 mm.

Habitat: Sumbava, Lesser Sunda Is. Type in Hungarian Nat. Mus., Budapest.

16. *PARVICEPS* Enderl.

Diastephanus parviceps Enderl. (4), p. 296, ♀.

♀. Head very small and globose. Frons finely alutaceous (under a 27-power lens it appears finely and densely aciculate); vertex and occiput finely and densely transaciculate, with a sub-obsolete impression behind. Posterior margin of head bordered. Second flagellar joint one and a half times as long as first; third as long as first and second together. Neck granulate aciculate, semiannular smooth; (mesonotum damaged); scutellum polished, with a few marginal punctures on central lobe, lateral lobes finely punctate. Mesopleuræ with a few coarse punctures on anterior half, apex finely and closely punctate. Metapleuræ and median segment coalescent with hexagonal cellular impressions, honeycomb-like. Petiole very finely and closely transaciculate, longer than rest of abdomen, which is smooth, only extreme base of second segment finely punctate rugose. Terebra nearly as long as body, spicula ferruginous, sheaths black, white-banded before apex. Hind coxæ slender, shining, finely and lightly trans-striate; hind femora shining smooth, with microscopic reticulations.

Black; head (except apices of mandibles, vertex, and frons to anterior tubercle, which are black-brown), base of antennæ, front tarsi, middle tibiæ and tarsi ferruginous-yellow; hind tibiæ and tarsi brown. Wings hyaline, nervures brown; stigma very long and narrow, hyaline.

Length 11 mm.; abdomen $6\frac{3}{4}$ mm.; petiole $3\frac{3}{4}$ mm.; terebra $10\frac{1}{2}$ mm.; fore wing 6 mm.

Habitat: Soekaranda, Sumatra. 1 ♀. Dr. Dohrn.

17. *FRONTILINEA* Morley.*Diastephanus frontilinea* Morley (1), p. 109, ♀.

♀. Frons finely reticulate and white pubescent; vertex longitudinally aciculate; occiput very finely and closely trans-aciculate; frontal tubercles prominent and acuminate, the anterior rather larger. Posterior margin of head reflexed. Antennæ with first and second flagellar joints of equal length and rather shorter than third. Neck multicarinate, semiannular smooth and shining. Mesonotum very short, shining and sparsely punctate. Scutellum large and flat, with the impressions marked only by two rows of three punctures in front, smooth and shining. Mesopleuræ finely alutaceous and pubescent, with a few scattered punctures; metapleuræ smooth and finely subaciculate, separated by a strongly-marked sulcus from the median segment, which is coriaceous between very large and partly confluent punctures. Petiole transaciculate, longer than rest of abdomen; second segment basally narrowly scabrous, remainder of abdomen smooth; apex of sixth segment discally acutely emarginate. Terebra shorter than body, sheaths white-banded before apex. Hind legs with coxæ trans-striate; femora alutaceous, bidentate; tibiæ as long as femora, compressed to a little beyond middle and there internally excised.

Black; mouth-parts, inner and outer orbits testaceous; a longitudinal line down centre of frons and the tubercles rufous; anterior tibiæ testaceous and hind tarsi red. Wings narrow, hyaline; stigma lanceolate and subhyaline.

Length $10\frac{1}{2}$ mm.; abdomen $5\frac{1}{2}$ mm.; petiole 3 mm.; terebra 9 mm.

Habitat: Rangpur, on border of Eastern Bengal and Assam; 25. vii. 05. Type in Pusa collection.

18. *TRILINEATUS* Elliott.*Diastephanus trilineatus* Elliott (3), p. 81, ♀.

♀. Frons and vertex very finely arcuate striate, occiput trans-striate; carinæ between posterior ocelli subobsolete; posterior margin of head bordered. Second flagellar joint half as long again as first; third as long as first and second together. Pronotum trans-striate; mesonotum diffusely punctate; scutellum smooth. Propleuræ smooth; mesopleuræ finely striate and punctate; metapleuræ and median segment cribrate punctate. Petiole trans-striate, apically smooth, as long as the smooth remainder of abdomen. Terebra shorter than body, with subapical white band. Hind coxæ trans-striate, their femora bidentate; tibiæ compressed slightly beyond middle.

Black; mouth-parts flavous, inner and outer orbits and frons centrally and two basal joints of antennæ flavous; vertex and occiput nigro-rufescent; legs more or less rufescent. Wings hyaline.

Length 9-13 mm.; abdomen 5-8 mm.; petiole $2\frac{1}{2}$ -4 mm.; terebra $8\frac{1}{2}$ -12 mm.

Habitat: Hoabinh, Tonkin. R. V. de Salvaza; Aug. 1918. Two specimens in the British Museum.

The colour of the head in this species is exactly as in *D. bilineatus* Elliott, from which it differs in the bidentate hind femora and concolorous teeth.

19. CHINENSIS Elliott.

Diastephanus chinensis Elliott (2), p. 73, ♀.

♀. Frons very finely striate, transversely below, becoming longitudinal above, round the anterior tubercle and in the ocellar space; vertex and occiput finely longitudinally striate; posterior margin of head bordered. Basal flagellar joints normal. Pronotum trans-striate, semiannular more coarsely, especially laterally. Mesonotum coarsely punctate; central lobe of scutellum with diffuse large punctures, lateral lobes with the external half longitudinally striate. Propleuræ longitudinally striate above and smooth beneath; mesopleuræ alutaceous; metapleuræ coarsely punctate above, trans-striate beneath, separated by a carina from the cribrate-punctate median segment. Petiole finely trans-striate, with extreme apex smooth, as long as rest of abdomen, which is smooth and shining. Terebra slightly longer than body, spicula rufescent, sheaths black, with subapical white band. Hind coxæ trans-striate; hind femora finely alutaceous and shining, bidentate; tibiæ compressed to beyond middle, alutaceous, the explanate part less strongly sculptured.

Black; head except vertex, two basal antennal joints and the anterior legs rufescent. Wings hyaline, nervures brown.

Length 12 mm.; abdomen 8 mm.; petiole 4 mm.; terebra 13 mm.

Habitat: China; Haut Mékong, Tong King. R. V. de Salvaza. Type in British Museum.

Distinguished by the sculpture of the frons and vertex, and especially by the striation of the outer lobes of the scutellum.

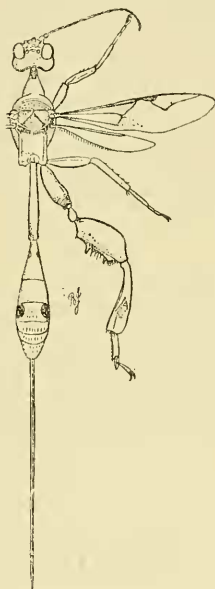
20. ALUTACEUS Morley.

Diastephanus alutaceus Morley (1), p. 109, ♀.

♀. Body entirely alutaceous and dull throughout. Head finely transrugose in front; all frontal tubercles small; vertex with one carina behind basal tubercle; a few weak transcarinae at posterior margin of occiput, which is bordered. Antennæ as long as head and thorax; second flagellar joint one and a half times as long as first; third only as long as second; all flagellar joints well discreted *inter se*. Neck with a discal longitudinal sulcus, apically only laterally transcarinate, semiannular basally explanate. Scutellum as broad as long, apically obtuse, the

usual impressions or rows of punctures are wanting. Mesopleuræ smoother than mesonotum and pubescent; metapleuræ confluent with median segment, which is explanate and slightly transcarinate immediately before its apex. Petiole shorter than the remaining segments, second basally constricted, sixth apically discally emarginate. Terebra shorter than body. Hind coxæ as long as femora, which are strongly incrassate, bidentate, and basally angulate below; tibiæ longer than femora, compressed to middle and there excised.

Text-figure 6.



Diastephanus alutaceus.

Rufo-testaceous; eyes, ocelli, apex of mandibles, frenum, spot at base of petiole, circular spot on each side of basal third of second segment, and a larger spot on each side of fourth black; femoral teeth white; terebra rufo-testaceous, apically black. Wings lacteous-hyaline, with a circular pale fuscous spot in the discoidal cell, and another very faint one below the centrally infuscate stigma.

Length 10 mm.; abdomen 6 mm.; petiole $2\frac{1}{2}$ mm.; terebra 8 mm.

Habitat: Lonely Mine, Rhodesia. H. Swale, 12.v.1914. Type in British Museum.

21. *BREVIPETIOLATUS* Enderl.

Stephanus brevipetiolatus Enderl. (1), p. 205, ♀. *Dia-stephanus b.* Enderl. (2), p. 475.

♀. Head small; frons finely arcuate rugose; anterior tubercle very long and pointed, the four others indistinct. Vertex coarsely transrugose; occiput finely and closely punctate, slightly rugose; posterior margin of head bordered. First and second flagellar joints of equal length, third and fourth also equal, and twice as long as first. Pronotum smooth and dull. Mesonotum irregularly transrugose; scutellum centrally dull, not punctate, the anteriorly convergent rows of punctures deep. Meso- and meta-pleuræ and median segment finely alutaceous, latter not separated from metapleuræ. Petiole dull, only apically sub-transrugose, stout, clavate, and only half as long as remainder of abdomen. Terebra as long as body, spicula yellow, sheaths brown. Hind coxæ finely trans-striate.

Black; frons, vertex, and apex of mandibles black; remainder of head, four basal antennal joints, and band at base of third segment ferruginous; legs ferruginous, femora basally and above and hind tibiæ centrally black. Wings hyaline, nervures pale brown.

Length 8 mm.

Habitat: Johann Albrechtshöhe, North Cameroons. L. Conradt.

The unusually short and stout petiole, together with the dull pronotum and scutellum, distinguish this species from all others.

The group of species, including *D. schlettereri*, *togoensis* and its var. *fasciatus*, *flavomaculatus*, and *brevipetiolatus*, all from Johann Albrechtshöhe, have much in common, and require further elucidation.

22. *TRILOBATUS* Elliott.

Diastephanus trilobatus Elliott (3), p. 32, ♀.

♀. Frons and vertex extremely finely, occiput more coarsely trans-striate; posterior margin of head very finely bordered. Scape slightly longer than cheeks. First and second flagellar joints of equal length, third about as long as first and second together. Pronotum transrugose, apically coarsely, basally more finely, with extreme base smooth; mesonotum and scutellum smooth, with a few coarse punctures; mesopleuræ smooth above, punctate below; metapleuræ cribrate punctate; median segment coarsely and irregularly punctate. Petiole shorter than rest of abdomen, finely trans-striate, remaining segments smooth. Terebra very slightly longer than body, sheaths black. Hind coxæ basally punctate, remainder trans-striate; femora bidentate; tibiæ compressed to beyond middle.

Black; head beneath, inner orbits, and frons flavous; the

upper margin of the colour is trilobed, the central lobe extending to the lower tubercle, the outer lobes triangular; antennæ basally rufo-testaceous; posterior metatarsi white. Wings hyaline.

Length 11 mm.; abdomen 7 mm.; petiole 3 mm.; terebra $11\frac{1}{2}$ mm.

Habitat: Hoabinh, Tonkin. R. V. de Salvaza. Aug. 1918. Type in British Museum.

Differs from *D. trilineatus* Elliott in the shorter second flagellar joint, sculpture of mesonotum and mesopleuræ, and black terebral sheaths. In *D. trilineatus* and *simillimus* two descending rufescent streaks divide the space between the eyes into five about equally broad strips of colour, and the lower tubercle is entirely black. In *D. trilobatus* the narrow central streak extends to the top of the tubercle and the outer streaks are broadly triangular.

23. DOHRNI Enderl.

Diastephanus dohrni Enderl. (4), p. 291, ♀.

♀. Head medium size; frons anteriorly regularly, posteriorly irregularly transrugose, an irregular longitudinal impression below anterior tubercle, space between tubercles arcuate rugose; vertex transrugose; occiput rather wavily trans-striate with central longitudinal impression and finely bordered. Second flagellar joint one and a half times as long as first; third as long as first and second together. Pronotum dull, indistinctly transrugose in front, posterior margin polished smooth. Mesonotum smooth, with diffuse coarse punctures and apically transrugose; scutellum smooth, six deep punctures on each side. Mesopleuræ smooth, anterior third densely and finely punctate, with diffuse larger punctures, posterior half coarsely punctate on each side of a central carina. Metapleuræ and median segment coalescent, irregularly and laterally reticulately punctate. Petiole finely trans-striate, apically transrugose, shorter than rest of abdomen, which is smooth, basally slightly rugose. Terebra as long as body, spicula red-yellow, sheaths entirely black. Hind legs with coxæ slender, finely and densely trans-striate; femora smooth, with microscopic sculpture.

Black; head except vertex and apices of mandibles, 4-5 basal antennal joints ferruginous; anterior legs pale ferruginous, hind tibiae and tarsi dark brown. Wings hyaline; nervures brown, stigma hyaline, apically very pointed.

Length 18 mm.; abdomen $11\frac{1}{2}$ mm.; petiole $5\frac{1}{2}$ mm.; terebra 18 mm.; fore wing $9\frac{1}{2}$ mm.

Habitat: Soekaranda, Sumatra. 1 ♀. Dr. Dohrn; Jan. 1894.

This species is not unlike *D. carinifrons* Enderl. in colour and in habitus, but differs chiefly in the structure and sculpture of head, shorter petiole and terebra, the latter having entirely black sheaths.

24. *QUADRIDENS* Elliott.

Diastephanus quadridens Elliott (3), p. 31, ♀.

♀. Frons strongly arcuate rugose, vertex and occiput strongly trans-striate and sulcate; three carinæ between posterior ocelli; ocellar space rugose; posterior margin of head bordered. Second flagellar joint one and a half times as long as first; third as long as first and second together. Prothorax coarsely trans-striate, basally more finely and extreme base smooth; mesothorax trans-rugose; marginal punctures of scutellum deep. Propleuræ finely striate; mesopleuræ punctate above, smooth beneath; metapleuræ and median segment strongly cribrate punctate. Petiole finely trans-striate, as long as remaining smooth, shining segments. Terebra longer than body, sheaths black. Hind coxæ and femora densely and finely trans-striate, latter bidentate, but the two prominences on basal half so unusually developed as almost to rank as teeth; tibiæ compressed to middle.

Black; head and two basal antennal joints rufo-testaceous; vertex nigrescent. Wings hyaline.

Length 15 mm.; abdomen 10 mm.; petiole 5 mm.; terebra 17 mm.

Habitat: Luang Prabang, Indo-China. R. V. de Salvaza; 5.x.1917. Type in British Museum.

This species is characterized by the unusual development of the femoral subsidiary tubercles, as well as by the sculpture of the prothorax, mesopleuræ, hind coxæ, and femora.

25. *TEREBELLUS* Enderl.

Stephanus terebellus Enderl. (1), p. 204, ♀. *Diastephanus* (2), p. 475.

♀. Head small; frons arcuate rugose, vertex coarsely, occiput finely transrugose; posterior margin of head sharply bordered. First and second flagellar joints of equal length, third and fourth also equal and each twice as long as first. Pronotum elongate, polished smooth, punctured only in front and round scutellum, which is polished smooth. Metanotum very narrow, coarsely longitudinally rugose. Mesopleuræ polished smooth above, densely pubescent and diffusely punctate below; metapleuræ diffusely, posteriorly more densely punctate, separated by a slightly raised costa from the median segment, which is finely alutaceous, laterally diffusely punctate, with a fine longitudinal median line. Petiole finely trans-striate, about as long as rest of abdomen. Terebra only half as long as body, sheaths black, apically ferruginous. Hind coxæ finely trans-striate.

Black; face, cheeks, temples, 5 basal antennal joints, anterior femora, hind femora beneath, third and fourth sternites ferruginous. Wings hyaline; stigma and nervures pale yellowish. Antennæ from sixth joint brown; hind metatarsus whitish.

Length $8\frac{1}{2}$ mm.

Habitat: Lolodorf, South-East Cameroons. L. Conradt.

This species appears to be characterized by the small head, smooth pro- and meso-thorax, and very short terebra.

26. *RUFICOLLIS* Enderl.

Diastephanus ruficollis Enderl. (3), p. 205, ♀ ♂.

♀ ♂. Head small, globose. Neck strongly transrugose, laterally more finely; semiannular trans-striate, basally more coarsely and posterior margin laterally irregularly rugose. Mesopleuræ dull, with large diffuse punctures, upper third finely granulate punctate, yellow pubescent. Petiole very slender, finely trans-striate; second segment dull, finely punctate, basally more granulate. Terebra in ♀ slightly shorter than body, sheaths entirely black. Hind femora bidentate; hind coxæ smooth, hind tibiæ and metatarsus without pubescence.

Black; head ferruginous yellow, vertex more brown in ♀, redder in ♂; antennæ darkish rufo-testaceous, apically brown; posterior half of pronotum ferruginous; anterior coxæ and legs pale ferruginous, all tarsi rufescent. Anterior femoral tooth yellow, the posterior black. Wings hyaline; stigma long and yellow, nervures brown.

Length, ♀, $10\frac{1}{2}$ mm.; petiole 3.2 mm.; terebra $10\frac{1}{2}$ mm.; fore wing 6 mm. ♂, 8 mm.; petiole 2.2 mm.; fore wing 4.4-4.6 mm.

Habitat: Formosa. H. Sauter; May-June 1912. Co-types in Dahlen and Stettin Museums.

Differs from *D. flavidentatus* in the entirely yellowish head, not pubescent hind tibiæ and metatarsus, black terebral sheaths and black posterior femoral tooth.

27. *MACULIFEMUR* Enderl.

Diastephanus maculifemur Enderl. (4), p. 294, ♀.

♀. Head rather large, globose. Frons densely and coarsely punctato-rugose, the rugosities run from the median line obliquely backwards, apically more transversely; space between frontal tubercles longitudinally striate; vertex with three or four strong transcarinæ; occiput wavily trans-striate and finely punctate, with narrow central impression. Cheeks buccate; posterior margin of head bordered. Second flagellar joint one and a half times as long as first; third almost longer than first and second together. Pronotum densely trans-striate, more strongly towards apex, posterior margin polished smooth. Mesonotum apically strongly transrugose, dorsally with deep diffuse punctures and microscopic striation, a deep impression before scutellum, which is polished smooth, with deep marginal punctures and subobsolete median impression. Mesopleuræ polished smooth, diffusely punctate beneath, apically finely and densely punctate; metapleuræ and median segment separated by a carina between two rows of small punctures, and both with large hexagonal to circular punctures, honeycomb-like. Petiole very

finely and densely transaciculate, with narrow smooth posterior margin, about as long as remainder of abdomen, which is smooth, basally finely rugoso-punctate. Terebra shorter than body, spicula ferruginous, sheaths entirely black. Hind coxæ slender, shining, very finely transaciculate; hind femora smooth, shining, with microscopic reticulations, bidentate.

Black; head except apices of mandibles, and three basal antennal joints ferruginous; posterior margin of pronotum yellow-brown. Basal fourth of intermediate tibiae, basal half of their metatarsus, a small elongate oval spot near apex of hind femora outside, and the femoral teeth white. Wings hyaline, nervures brown; stigma very long and narrow, yellow hyaline.

Length $13-15\frac{1}{2}$ mm.; abdomen $7\frac{1}{2}-8\frac{1}{2}$ mm.; petiole $3\frac{1}{2}-4\frac{1}{2}$ mm.; terebra $10-12$ mm.; fore wing $7\frac{1}{2}-8\frac{1}{2}$ mm.

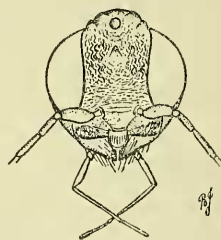
Habitat: Perak, 1 ♀; Malacca, 1 ♀.

Text-figure 7.



Diastephanus sulcatus.

Text-figure 8.



Diastephanus sulcatus.

28. SULCATUS Elliott.

Diastephanus sulcatus Elliott (3), p. 80, ♀.

♀. Face irregularly rugose, vertex and occiput trans-striate, with very distinct longitudinal sulcus; three stout, curved carinae between the posterior ocelli; posterior margin of head bordered. Scape longer than cheeks. Basal flagellar joints

normal. Neck finely trans-striate, semiannular smooth in front, basally arcuate striate; mesonotum rugose; scutellum laterally strongly punctate; metanotum longitudinally carinate. Propleuræ smooth; mesopleuræ finely trans-striate, apically punctate; metapleuræ and median segment cribrate punctate, the latter with an elongate triangular central basal punctate and very finely trans-striate and dull space, bounded by large punctures. Petiole trans-striate, shorter than the remaining smooth segments. Terebra shorter than body, spicula pale red, sheaths black. Hind coxæ finely trans-striate, their femora glabrous, bidentate; tibiæ compressed to middle.

Black; head red, apices of frontal tubercles and the carina on the vertex black; two basal antennal joints rufo-testaceous, third darker red, apically black. Anterior tibiæ and all tarsi rufescent; femoral teeth white. Wings hyaline.

Length 13 mm.; abdomen $7\frac{1}{2}$ mm.; petiole $3\frac{1}{2}$ mm.; terebra 11 mm.

Habitat: Luang Prabang, Indo-China. H. V. de Salvaza; 29. ix. 1917. Type in the British Museum.

The sculpture of the median segment resembles that of *D. leucodontus* Schlett., which the author describes as "basally and centrally smooth," and agrees also in the colour of the head and of the femoral teeth. It differs in sculpture of head and prothorax and black terebral sheaths.

29. SALOMONIS Westw.

Stephanus salomonis Westw. (5), p. 128, ♀. *Diastephanus s.* Morley (1), p. 107; Brues, p. 100; Elliott (2), p. 74, ♀.

♀. Frons and occiput arcuately rugose, latter with slight longitudinal sulcus; posterior margin of head bordered. Second and third flagellar joints of equal length, and about one-third longer than first. Neck elongate, glabrous, centrally deeply impressed and laterally vallyately elevated; semiannular smooth, with a few apical transcarinæ, and a band of indistinct punctures before the base. Mesonotum rather densely punctate; mesopleuræ subglabrous, with a few superficial punctures; median segment with large, rather dense, but not confluent punctures. Petiole rather longer than rest of abdomen, trans-striate; second segment basally constricted and slightly rugulose, remaining segments smooth. Terebra slightly shorter than body, sheaths entirely black. Hind coxæ trans-striate, hind femora alutaceous, shining, bidentate; hind tibiæ compressed to middle.

Black; face below antennæ, inner orbits partly, outer orbits entirely pale stramineous; mandibles and anterior legs bright ferruginous; hind legs with coxæ, base of femora and apex of tibiæ more or less black. In the type-specimen the basal half

of the hind femora is black all over, but in the other above only. Wings hyaline.

Length 16 mm.; abdomen 10 mm.; petiole $5\frac{1}{2}$ mm.; terebra 15 mm.

Habitat: Solomon's Island, New Hebrides (Westwood); Solomon Islands (Woodford).

The specimen described by Westwood, now in the British Museum, was taken during the voyage of H.M.S. 'Herald' in 1866. The abdomen is wanting, but the three-jointed tarsi prove it to be a female. In the same collection is a perfect specimen, taken by C. M. Woodford, probably about 1886, from which the description has been completed.

The extraordinarily deeply-excised neck of pronotum is very distinctive of the species; I know of no other at all like it.

Mr. T. C. Brues (*l. c.*) describes a specimen from Wai-ai, Solomon Is., which he considers to be this species. It differs in colour, in the legs being entirely black, except apical half of hind femora and basal constricted part of their tibiæ, second flagellar joint rather longer. The peculiar formation of the neck is not noted, but it is said to be finely trans-rugose, mesonotum irregularly rugose-reticulate in front, smooth behind. Allowing for the personal equation in descriptions, and the common variation in the colour of the legs in insects, I think the specimen described is truly this species.

Schletterer (p. 123) tentatively synonymizes this species with his *D. pallescens* from the Philippines; from it, however, *D. salomonis* differs in the above-named formation of the prothorax, the proportionate length of the basal antennal joints, and in having bidentate hind femora; these in *D. pallescens* are tridentate.

30. CELEBENSIS Szépl.

Fenatopus celebensis Szépl., p. 531, ♀. *Diastephanus* Enderl. (2), p. 475.

♀. Frons coarsely and indistinctly transrugose; occiput finely transrugose, with indistinct central impression; posterior margin of head bordered. Flagellar joints normal. Neck elongate, smooth in front, feebly trans-striate behind; mesonotum and scutellum smooth; mesopleuræ smooth, anteriorly rugose-punctate. Median segment cribrate punctate. Petiole finely trans-striate, nearly as long as rest of abdomen. Terebra rather shorter than body, sheaths black. Hind legs with coxæ finely transrugose; femora shining, extremely finely alutaceous, bidentate.

Black; temples, cheeks, and inner orbits yellowish; mouth, a median stripe on frons, and base of antennæ yellow-red; anterior tibiæ, basal half of hind tibiæ, and the tarsi brown-red. Wings hyaline, stigma centrally yellowish, tegulæ brownish.

Length 16 mm.

Habitat: Toli-Toli, North Celebes. Type in Hungarian National Museum, Budapest.

31. *SZEPLIGETII* Enderl.

Diastephanus szepligetii Enderl. (2), p. 476, ♀.

♀. Frons irregularly rugose; vertex with two transcarinae; occiput densely granulate rugose. Temples inflated. Scape shorter than second flagellar joint, which is scarcely twice as long as first; third and fourth of equal length and shorter than first and second together. Pronotum polished smooth; propleurae very finely punctate in front, centrally finely and densely aciculate, smooth behind, separated from pronotum by a deep sulcus. Mesonotum dull, diffusely punctate, anteriorly rugose. Scutellum smooth, with large diffuse marginal punctures. Mesopleurae rugose and finely punctate; metapleurae coarsely reticulate rugose, separated by a longitudinal carina from median segment, which is somewhat smooth, diffusely and deeply punctate, apically rugose. Abdomen rough, finely and densely punctate; petiole shorter than rest of abdomen. Terebra shorter than body (sheaths broken). Hind coxae finely and densely punctate, posteriorly finely striate.

Black: head ferruginous, except apices of mandibles, vertex, and occiput; scape, first flagellar joint, apices of femora, tibiae and tarsi except last tarsal joint, ferruginous. Wings hyaline, stigma brown-yellow, nervures golden-brown.

Length 15 mm.; abdomen 9 mm.; petiole $3\frac{1}{2}$ mm.; spicula 13 mm.; fore wing 8 mm.; expanse of wings $17\frac{1}{2}$ mm.

Habitat: Sierra Leone, West Africa.

32. *SIMILLIMUS* Elliott.

Diastephanus simillimus Elliott (3), p. 82, ♀.

♀. Head extremely finely trans-striate; flagellar joints normal. Neck rather finely trans-striate, semiannular smooth; mesonotum punctate; mesopleurae smooth above, punctate beneath; median segment and metapleurae cribrate punctate. Petiole very finely trans-striate, slightly longer than the remaining smooth segments. Terebra much shorter than body, sheaths black. Hind coxae trans-striate; femora smooth, bidentate; tibiae compressed to middle.

Black; front of head coloured exactly as in *D. trilineatus* Elliott, to which it bears a strong resemblance. Wings hyaline.

Length $12\frac{1}{2}$ mm.; abdomen $7\frac{1}{2}$ mm.; petiole 4 mm.; terebra 9 mm.

Habitat: Hoabinh, Tonkin. Aug. 1918; R. V. de Salvaza.

This species appears to differ from *D. trilineatus* Elliott chiefly in the proportional length of the second flagellar joint, in sculpture, and in the entirely black terebral sheaths. Type in British Museum.

33. SIMILIS Szépl.

Fenatopus similis Szépl., p. 530, ♂. *Diastephanus*, Enderl. (2), p. 475.

♂. Frons finely alutaceo-rugose; occiput short and rugose; posterior margin of head bordered. First and second flagellar joints of equal length. Neck short, finely rugose, dull, semi-annular coarsely rugose, as is also the mesonotum. Scutellum diffusely punctured, centrally smooth. Mesopleuræ finely rugose, not punctate; median segment with large, but not confluent, punctures. Petiole finely trans-striate, about as long as remainder of abdomen. Hind legs with coxæ finely trans-striate; femora finely and densely punctate, tridentate; tarsi four-jointed.

Black; head ferruginous, vertex nigrescent, temples and cheeks yellowish; anterior legs except middle coxæ and the hind tarsi yellow-red. Wings hyaline; stigma and nervures brown.

Length 11 mm.

Habitat: Simbang, New Guinea. Type in Hungarian National Museum, Budapest.

This species closely resembles *D. birói* Szépl. from the same locality, and may prove to be the male of that species.

Szépligetti states that in this species, in *D. fasciatus* ♂, and in *H. wüstneii* ♂ the hind tarsi are four-jointed. This is undoubtedly an error, as the said tarsi are five-jointed in all other known males, excepting only *S. tibiator* Schlett., in which they are three-jointed as in the typical female.

34. FLAVICEPS Elliott.

Diastephanus flaviceps Elliott (1), p. 131, ♂.

♂. Frons alutaceous, dull; vertex and occiput in front arcuate rugose, becoming transverse towards posterior margin, which is simple. First and second flagellar joints of equal length, third a little longer. Prothorax almost smooth; mesonotum trans-striate in front, central row of punctures and lateral impressions distinct; median segment coarsely punctate. Petiole trans-striate, a little longer than rest of abdomen; which is smooth and shining. Hind coxæ trans-striate; femora smooth, tridentate; tibiæ compressed to beyond middle.

Black; face, frons, base of antennæ, and anterior legs testaceous; cheeks pale red, occiput dark red; apex of prothorax and the hind femora rufescent. Wings hyaline.

Length 11 mm.; abdomen $7\frac{1}{2}$ mm.; petiole 4 mm.

Habitat? The type in the British Museum bears a label "F. Sm. coll. 79. 22." without locality.

35. FUSCINERVIS Cam.

Fenatopus fuscinervis Cam. (4), p. 101, ♂.

♂. Frons rugose-punctate, laterally closely trans-striate;

vertex closely trans-striate, as also the occiput, which has an indistinct longitudinal impression. Anterior three frontal tubercles stout, conical; the posterior smaller and more rounded. Second flagellar joint not quite twice as long as first. Pronotum closely aciculate, basally smooth, with an apical transcarina. Mesonotum centrally trans-striate; scutellum smooth. Mesopleuræ basally and apically sparsely punctate; metapleuræ reticulate, lower half smooth, with four suboblique carinæ. Median segment strongly reticulate. Petiole closely trans-striate, nearly twice as long as rest of abdomen, which is short ovate. Hind legs with coxæ finely trans-striate; femora rather dull, basally transrugose, tridentate; tibiæ compressed to middle.

Black; head dark red, vertex nigrescent, outer orbits yellow; pronotum basally, second and third abdominal segments laterally testaceous; anterior coxæ, trochanters, tibiæ and tarsi rufo-testaceous; hind tarsi red. Wings hyaline; stigma and nervures pale fuscous.

Length 12–14 mm.; abdomen $5\frac{1}{2}$ –7 mm.; petiole $3\frac{1}{2}$ – $4\frac{1}{2}$ mm.

Habitat: Kuching, Sarawak. Type in British Museum.

36. FLAVIFRONS Elliott.

Diastephanus flavifrons Elliott (1), p. 131, ♂.

♂. Frons irregularly rugose, vertex transcarinate, occiput trans-striate; posterior margin of head bordered. Second flagellar joint nearly twice as long as first; third not quite as long as first and second together. Pronotum trans-striate, deeply impressed at apex; mesonotum centrally smooth, laterally rugose, lateral impressions distinct. Mesopleuræ finely striate; metapleuræ punctate; median segment coarsely punctate. Petiole trans-striate, as long as rest of abdomen, which is smooth and shining. Hind coxæ trans-striate; hind femora smooth, bidentate.

Black; face and lower half of frons white, the edges of the colour sharply defined, that of the black forming an inverted W, and the mandibles apically broadly black, sharply defined; frontal tubercles rufescent; two basal antennal joints pale red; apex of pronotum obscurely, second and third abdominal segments, anterior tibiæ and tarsi rufescent. Wings hyaline, with red and green iridescence.

Length 11 mm.; abdomen 8 mm.; petiole 4 mm.

Habitat: Quop, West Sarawak. G. E. Bryant; iv. 1914. Type in British Museum.

This species is distinguished by the colour of the head; the black colour of the mandibles, which is unusually broad, has a straight margin against the white of the face, while the lower border of the dark upper part of frons forms a clear-cut broad inverted W.

37. *FASCIATUS* Szépl.

Fenatopus fasciatus Szépl., p. 529, ♂. *Diastephanus* Enderl. (2), p. 475.

♂. Frons finely and distinctly transrugose; occiput short and transrugose; posterior margin of head bordered. First flagellar joint subglobose, little shorter than second. Pronotum elongate, slender, transrugose. Mesonotum and scutellum nearly smooth. Mesopleuræ anteriorly finely rugose, indistinctly punctate. Median segment with large, superficial, and not very dense punctures, interstice alutaceous. Petiole densely trans-striate, longer than rest of abdomen. Hind coxæ densely and irregularly transrugose; hind femora finely alutaceo-punctate, dull, bidentate; hind tarsi four-jointed.

Black; head except vertex, base of antennæ, prosternum, anterior legs, hind femora centrally, hind tarsi, and apical angles of second segment yellow-red; tegulæ flavous, with black spot. Wings hyaline, nervures yellow-brown, stigma centrally flavous.

Length 9 mm.

Habitat: Sumbava. Type in Hungarian National Museum, Budapest.

38. *FLAVONOTATUS* Elliott.

Diastephanus flavonotatus Elliott (2), p. 32, ♂.

♂. Frons extremely finely transversely coriaceous-rugose; vertex with four carinæ; occiput short, finely trans-striate, its posterior margin simple. Anterior frontal tubercle almost obsolete. Scape a little shorter than cheeks. Second flagellar joint one and a half times as long as first. Neck elongate and slender, the whole pronotum obsoletely trans-striate, becoming subnitidulous basally, with a short longitudinal fovea. Scutellum smooth; mesonotum nearly smooth. Pro- and meso-pleuræ smooth, the latter diffusely punctate; metapleuræ smooth in front, reticulate rugose behind; median segment coarsely punctate. Petiole very finely trans-striate, shorter than the remaining strongly nitidulous segments. Hind coxæ slender, trans-striate; their femora smooth, with two large white teeth; tibiæ compressed to beyond middle.

Black; frons flavous, vertex ferruginous, occiput nigrescent. Antennæ testaceous; pronotum subrufescent. Anterior legs rufo-testaceous. Hind coxæ black, femora ferruginous, centrally paler; tibiæ darker, apically and the metatarsus flavous, other tarsal joints rufescent. Petiole black, remaining segments rufescent, a large circular flavous mark on each side of third segment near base. Wings hyaline, iridescent; nervures pale fuscous.

Length $19\frac{1}{2}$ mm.; abdomen $6\frac{1}{2}$ mm.; petiole 3 mm.

Habitat: Kuching, Sarawak. 14. v. 1900. Type in British Museum.

This may prove to be the male of *D. leucodontus* Schlett., also from Sarawak, with which it agrees in the obsolete frontal tubercle, short occiput, and very largely in sculpture. The round flavous spots on third segment are very distinctive, and I do not feel sure enough of the connection to unite them.

DOUBTFUL SPECIES.

The following species cannot be placed, in consequence of defective descriptions :—

MEGISCHUS CANADENSIS Davis.

Megischus canadensis Davis, Trans. Amer. Ent. Soc. xxiv. p. 349 (1897), ♀.

“♀, 14 mm., ovipositor 18 mm.

“Black, with cheeks beneath and posterior tarsi dirty yellow; four anterior legs with tibiæ, tarsi and apical trochanter, also hind trochanters, pale piceous; wings hyaline, nervures and stigma reddish-brown: the sculpturing is different from and much finer than in the preceding species (*M. floridanus*, see below), the head, including face, is circularly reticulate, very finely so on the occiput; prothorax coarsely reticulate; petiole irregularly transversely wrinkled; five spines of the head are mere transverse prominences and the anterior ocellus is in a broad, rather deep basin: guides of ovipositor broken.

“One specimen from Toronto, Canada, collected July 15th by Mr. T. C. Priddey.”

STEPHANUS DIADEMA Fab.

Fœnus diadema Fab. MSS. Type in Mus. Kilia.

Stephanus diadema (Fab.), Westw. Trans. Ent. Soc. Lond. iii. p. 277 (1843).

“I am unfortunately unable to determine whether this undescribed insect be specifically different from the last (*S. bicolor*); the notes which I made at Kiel simply stating that the œnus diadema of the Fabrician cabinet is a *Stephanus* with a red head.”

There appears to be no other reference to this species, though the name appears in all lists of Stephanidæ.

STEPHANUS DIVERSUS Schlett.

Megischus furcatus Brullé, Hist. Nat. Ins. Hym. iv. p. 539 (1846); Westw. Trans. Ent. Soc. Lond. 1850-51, p. 228, ♀. *Stephanus diversus* Schlett. Berl. Ent. Zeit. xxxiii. p. 133 (1889), ♀.

“Niger, alis fere fuscis, abdominis segmento secundo lævigato, valvulis terebræ nigris. Fem.

“Il est noir, avec les joues roux et la base des mandibles d’un

roux ferrugineux. Les ailes sont lavées de bistre et leurs nervures sont noires. Cette espèce ressemble beaucoup à la précédente (*annulator*=*furcatus* Lep. & Serv.). Elle n'en diffère, pour ainsi dire, que par sa taille moindre, par la couleur plus foncée de ses ailes et par les valves de sa tarière qui sont plus grêles, sans anneau blanc, et dont l'extrémité n'est pas lanceolée comme dans *Meg. annulator*. Long. du corps 0·030, de la tarière 0·040. *Hab.* le Brésil; collect. de M. Serville.

"Le nom *furcatus*, qui porte cette espèce, vient sans doute de ce que le prothorax est échancré en avant. Cette disposition existe dans le *M. annulator*, dont la partie antérieure du prothorax est d'un roux ferrugineux."

Schletterer writes:—"Brullé has described under the name of *annulator*, a species previously named *furcatus* by Lepeletier and Serville in 1825. His *furcatus*, which is sufficiently distinguished from *furcatus* Lep. & Serv. by the entirely black terebral sheaths and darker wings, must be re-named: I call it *diversus*."

MEGISCHUS FLORIDANUS Davis.

Megischus floridanus Davis, Trans. Amer. Ent. Soc. xxiv. p. 349 (1897), ♀ ♂.

"♀ ♂—♀ 20 mm., ovipositor 22 mm.; ♂ 6 mm.

"Black, with head, thorax, and tarsi slightly reddish, decidedly so in ♂; guides of the ovipositor in ♀ with a broad white band near the apex; wings yellowish fusco-hyaline, nearer hyaline in ♂; front, vertex, hind coxæ, and petiole strongly rugose and more or less reticulate, distinctly so on vertex and prothorax, and in ♀ on petiole, becoming finer towards apex; front above antennæ very rough and with five tubercles distinct, the last two placed between the hind ocelli; heel segment of hind tarsus with large, dense scopal pads.

"Two specimens from Florida, collected by Mr. T. C. Priddey."

STEPHANUS FRONTALIS Klug, Westw.

Stephanus frontalis Klug, MSS.; Westw. Trans. Ent. Soc. Lond. iii. p. 276 (1843) (sine descript.).

"Species adhuc inedita, in Mus. Reg. Berolinensis conserv. Habitat Caput Bonæ Spei."

STEPHANUS SPOLIATOR Smith.

Megischus spoliator Smith, Journ. Proc. Linn. Soc. Lond. vii. p. 6 (1884), ♀. *Stephanus spoliator* Schlett. Berl. Ent. Zeit. xxxiii. p. 117 (1889), ♀.

"*M. niger*, mandibulis et antennarum basi rufis; thorace rugose; pedibus anticis et intermediis ferrugineis, tarsis posterioribus rubris; alis hyalinis.

"*Female*. Length 7 lines. Black; the mandibles, palpi, and five basal joints of the antennæ ferruginous; the face rugose, the

front with three short acute tubercles placed in a triangle, behind which the head is transversely rugulose; behind the eyes is a broad cream-coloured stripe, which extends to the base of the mandibles. The thorax rugose, with large punctures on the metathorax; the anterior and intermediate legs ferruginous. Abdomen: the first segment, which forms the petiole, transversely striated; the rest of the abdomen smooth and shining; the ovipositor more than one-third longer than the body; the wings hyaline, the nervures black."

This species is from Waigiu Island, near New Guinea. It appears to show affinities with *D. salomonis* Westw. and *P. pictipes* Roman, both from the same region, but the details are too scant to place it with certainty.

MEGISCHUS TARSALIS Smith.

Megischus tarsalis Smith, Journ. Proc. Linn. Soc. Lond. v. p. 137 (1861), ♀.

"*M. niger*, pedibus anticis et intermediis ferrugineis, tarsis posterioribus rubris, alis subhyalinis.

"*Female*. Length 9 lines. Black; the head coarsely sculpturated, on the face transversely so; the front with a transverse ridge, before which are two acute tubercles touching the eyes, and a central, more elevated one, a little in advance. The thorax coarsely punctured, the prothorax forming an elongated neck; the anterior and intermediate legs ferruginous; the dilated apical portion of the posterior tibiæ and the tarsi bright ferruginous; the posterior coxæ rugose, the femora bidentate; wings fuscous, the nervures dark brown. Abdomen: the ovipositor the length of the body; the basal segment or petiole finely striated transversely, the following segments smooth and shining; the ovipositor with a wide fascia of white a little before the apex. *Hab.* Bachian.

"This species differs from *M. coronator* in the form and situation of the tubercles on the front of the head; the neck is much longer and more slender; the ovipositor is as long as, but not longer than the body."

Schletterer tentatively synonymizes this species with *S. tarsatus* Sichel, with which it corresponds in the infumation of the wings, length and colour of terebra, sculpture of petiole, and, to some extent, in the sculpture of head and thorax. It differs in having the head black, thorax coarsely punctate, and in the much smaller size. The details given are insufficient for certain identification.

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